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Ontario

# ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 99

DATE: Thursday, May 4th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman  
E. MARTEL, Member  
A. KOVEN, Member



FOR HEARING UPDATES CALL (TOLL-FREE): 1-800-387-8810

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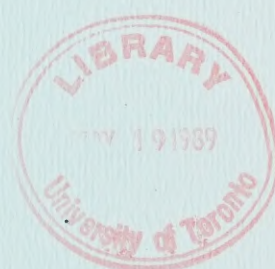
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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER of an Order-in-Council  
(O.C. 2449/87) authorizing the  
Environmental Assessment Board to  
administer a funding program, in  
connection with the environmental  
assessment hearing with respect to the  
Timber Management Class  
Environmental Assessment, and to  
distribute funds to qualified  
participants.

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Hearing held at the Ramada Prince Arthur  
Hotel, 17 North Cumberland St., Thunder  
Bay, Ontario, on Thursday, May 4th,  
1989, commencing at 8:30 a.m.

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VOLUME 99

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member







A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	MINISTRY OF NATURAL
MS. C. BLASTORAH )	RESOURCES
MS. K. MURPHY )	
MS. Y. HERSCHER )	
MR. B. CAMPBELL )	MINISTRY OF ENVIRONMENT
MS. J. SEABORN )	
MR. R. TUER, Q.C.)	ONTARIO FOREST INDUSTRY
MR. R. COSMAN )	ASSOCIATION and ONTARIO
MS. E. CRONK )	LUMBER MANUFACTURERS'
MR. P.R. CASSIDY )	ASSOCIATION
MR. J. WILLIAMS, Q.C.	ONTARIO FEDERATION OF
MR. B.R. ARMSTRONG	ANGLERS & HUNTERS
MR. G.L. FIRMAN	
MR. D. HUNTER	NISHNAWBE-ASKI NATION and WINDIGO TRIBAL COUNCIL
MR. J.F. CASTRILLI)	
MS. M. SWENARCHUK )	FORESTS FOR TOMORROW
MR. R. LINDGREN )	
MR. P. SANFORD )	KIMBERLY-CLARK OF CANADA
MS. L. NICHOLLS)	LIMITED and SPRUCE FALLS
MR. D. WOOD )	POWER & PAPER COMPANY
MR. D. MacDONALD	ONTARIO FEDERATION OF LABOUR
MR. R. COTTON	BOISE CASCADE OF CANADA LTD.
MR. Y. GERVAIS)	ONTARIO TRAPPERS
MR. R. BARNES )	ASSOCIATION
MR. R. EDWARDS )	NORTHERN ONTARIO TOURIST
MR. B. McKERCHER)	OUTFITTERS ASSOCIATION
MR. L. GREENSPOON)	NORTHWATCH
MS. B. LLOYD )	







APPEARANCES: (Cont'd)

MR. J.W. ERICKSON, Q.C.)	RED LAKE-EAR FALLS JOINT
MR. B. BABCOCK )	MUNICIPAL COMMITTEE
MR. D. SCOTT )	NORTHWESTERN ONTARIO
MR. J.S. TAYLOR)	ASSOCIATED CHAMBERS OF COMMERCE
MR. J.W. HARBELL)	GREAT LAKES FOREST
MR. S.M. MAKUCH )	
MR. J. EBBS	ONTARIO PROFESSIONAL FORESTERS ASSOCIATION
MR. D. KING	VENTURE TOURISM ASSOCIATION OF ONTARIO
MR. D. COLBORNE	GRAND COUNCIL TREATY #3
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MR. H. GRAHAM	CANADIAN INSTITUTE OF FORESTRY (CENTRAL ONTARIO SECTION)
MR. G.J. KINLIN	DEPARTMENT OF JUSTICE
MR. S.J. STEPINAC	MINISTRY OF NORTHERN DEVELOPMENT & MINES
MR. M. COATES	ONTARIO FORESTRY ASSOCIATION
MR. P. ODORIZZI	BEARDMORE-LAKE NIPIGON WATCHDOG SOCIETY
MR. R.L. AXFORD	CANADIAN ASSOCIATION OF SINGLE INDUSTRY TOWNS
MR. M.O. EDWARDS	FORT FRANCES CHAMBER OF COMMERCE
MR. P.D. McCUTCHEON	GEORGE NIXON





(iii)

APPEARANCES: (Cont'd)

MR. C. BRUNETTA

NORTHWESTERN ONTARIO  
TOURISM ASSOCIATION





I N D E X   O F   P R O C E E D I N G S

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<u>PETER PHILLIP HYNARD,</u>	
<u>RICHARD BRUCE GREENWOOD,</u>	
<u>CAMERON D. CLARK,</u>	
<u>FRANK D. KENNEDY,</u>	
<u>WILLIAM DOUGLAS BAKER,</u>	
<u>ROBERT ELLIOTT,</u>	
<u>RONALD ORVAL WAITO,</u>	
<u>DAVID M. HOGG, Resumed</u>	16506
Continued Direct Examination by Mr. Freidin	16506





I N D E X     O F     E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
554	Hard copy of photographs found in Document No. 3, Mr. Kennedy's paper.	16523
555	Hard copy of photographs found in Document No. 2, Mr. Waito's paper.	16523
556	VHS video presentation.	16558
557	Hard copy of photographs contained in witness statement related to Mr. Elliott's presentation.	16589
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558A	Photograph depicting Red Lake Fire 7, 1986.	16594
558B	Slide depicting fire behaviour characteristics.	16594
558C	Slide depicting suppression requirements.	16600
559	Copy of Prescribed Burn Planning Manual published 1987.	16605
558D	Slide entitled: Forest Fire Behaviour System, Fire Weather Index.	16607
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558H	Slide entitled: Moisture Content.	16611
558I	Slide entitled: Forest Fire Behaviour Rating System Can Predict.	16612



1       ---Upon commencing at 8:35 a.m.

2                   THE CHAIRMAN: Good morning. Be seated,  
3 please.

4                   Is it Ms. Blastorah that's going to  
5 continue?

6                   Mr. Freidin?

7                   MR. FREIDIN: Mr. Chairman, a couple of  
8 questions arising out of yesterday. First to Mr.  
9 Waito. I would like to ask him a question about  
10 Exhibit 552B, as in Bob. That's the analysis of past  
11 results information in relation to survival.

12                   Past results is the first page of that  
13 exhibit, Mr. Chairman. It is a series of overheads  
14 that were used. Do you have that?

15                   THE CHAIRMAN: Yes.

16                   JOHN TRUMAN ALLIN,  
17                   PETER PHILLIP HYNARD,  
18                   RICHARD BRUCE GREENWOOD,  
19                   CAMERON D. CLARK,  
20                   FRANK D. KENNEDY,  
                  WILLIAM DOUGLAS BAKER,  
                  ROBERT ELLIOTT,  
                  RONALD ORVAL WAITO,  
                  DAVID M. HOGG, Resumed

21       CONTINUED DIRECT EXAMINATION BY MR. FREIDIN:

22                   Q. I understand you would like to make a  
23 correction to 552B, Mr. Waito?

24                   MR. WAITO: A. Yes, that's correct.

25       552B concerns survival results and point No. 3 I had



1 initially indicated that 87 per cent of the area  
2 assessed had survival greater than 87 per cent. That's  
3 not possible, that should read 87 per cent of the area  
4 assessed had survival greater than 70 per cent.

5 Q. Okay.

6 A. The message remains the same even  
7 with the change.

8 Q. Thank you. And, Mr. Hynard,  
9 yesterday when you were asked about stocking standards  
10 you were asked some questions, or you gave some  
11 evidence about the stocking standards for white pipe on  
12 your unit. My notes indicated that you said 30 per  
13 cent is about as good as we can get.



14 What did you mean by that?

15 MR. HYNARD: A. What I meant to say or  
16 what I meant by that was that at least 30 per cent  
17 stocking, a minimum of 30 per cent stocking was the  
18 best that we could realistically set under those site  
19 conditions. So in actual fact I will be setting an  
20 objective of 50 per cent stocking and expect to attain  
21 at least a minimum of 30 per cent.

22 Q. Thank you.

23 MR. FREIDIN: Mr. Chairman, if I just  
24 might have the Board's indulgence, I would like to  
25 engage in a first if I might. For the hearing and that

1 is, I would like to look at Mr. Hynard - and it is not  
2 because of the answer you gave, Mr. Hynard - but:

3  Happy Birthday to you,  
4 Happy Birthday to you,   
5 Happy Birthday dear Peter,  
6 Happy Birthday to you!

7 (applause)

8 THE CHAIRMAN: I don't know how that's  
9 going to come out on the transcript, but we hope the  
10 reporter can do something.

11 MR. FREIDIN: I'm going to be examining  
12 Mr. Kennedy this morning in relation to site  
13 preparation.

14 Q. Mr. Kennedy, could you advise the  
15 Board what the main messages are that you wish to  
16 convey to the Board through your evidence?

17 MR. KENNEDY: A. Yes. There are five  
18 main messages that I would like to leave with the Board  
19 during the course of presenting the evidence today.

20 And the first one is that site  
21 preparation is the intentional disturbance of the site  
22 which is necessary disturbance required to assist in  
23 the establishment and growth of tree seeds and  
24 seedlings.

25 Second, is that there is a number of  
factors which affect the methods and techniques of site

1 preparation, and the site conditions and anticipated  
2 regeneration treatments are two more important factors  
3 that are considered in deciding on prescriptions for  
4 site preparation.

5 And the third is that not all site  
6 preparation methods are equally suitable to all sites  
7 and that some sites may require more than one form of  
8 site preparation, and that site preparation is one  
9 aspect of renewal where we've had a great amount of  
10 innovation and change during the last 10 years, and the  
11 mechanical equipment suitable for site preparation  
12 continues to evolve and that we have come a long way  
13 from using the rock, as described by Mr. Armson in  
14 Panel 2.

15 Q. Mr. Kennedy, could you advise how you  
16 plan to address those issues in your evidence?

17 A. Yes. We are going to be going  
18 through a discussion of the purpose and objectives of  
19 site preparation as is contained in the witness  
20 statement. We are going to be highlighting some of  
21 those points, discussion of the factors which influence  
22 the prescriptions themselves, and a discussion of the  
23 methods and techniques that are available for site  
24 preparation which will include the use of a series of  
25 slides to illustrate the various pieces of equipment



1 and I also plan to use our training video that has been  
2 prepared for training our staff.

3 It will be used here to show the action  
4 of the equipment and to give the Board an  
5 understanding, or a better understanding of the dynamic  
6 nature of site preparation.

7 MR. FREIDIN: And perhaps we should just  
8 advise the Board that the video has a sound track and a  
9 transcript has been made of the video, and you will  
10 find that at pages 285 to 288 of the witness statement.

11 Q. Now, Mr. Kennedy, what is site  
12 preparation and how does it relate to timber management  
13 and the activity of renewal?

14 A. Site preparation literally is the  
15 methods that are employed to prepare a site for the  
16 successful establishment and growth of tree seeds and  
17 seedlings. It's a component of the renewal activity  
18 and as such it's an integral part of the timber  
19 management program.

20 Site preparation follows harvesting or  
21 other forms of disturbance that could occur in the  
22 forest such as wild fire, and it precedes regeneration  
23 treatments and can be used in conjunction with both  
24 natural and artificial regeneration.

25 Q. Are there any differences between

1 techniques used to prepare sites for artificial as  
2 opposed to natural regeneration?

3 A. No, there isn't, the techniques are  
4 the same. It depends on the site involved, the  
5 objectives of preparing that particular site and other  
6 factors such as the intensity of which the site  
7 preparation would be carried out for those various  
8 treatments.

9 Q. Is site preparation always required  
10 prior to a regeneration treatment?

11 A. No, it is not. Conditions can exist  
12 after a disturbance, such as wild fire or harvesting,  
13 where the site may be acceptable in its state. The  
14 results of harvest, such as the travel of skidders and  
15 the skidding of logs, could result in slash alignment,  
16 for instance, and make the area suitable for follow-up  
17 planting without any additional forms of site prep.

18 Q. What is the purpose of site  
19 preparation?

20 A. Site preparation provides a -- or the  
21 purpose is to provide a suitable physical environment  
22 for the establishment and growth of seeds and  
23 seedlings. Trees have certain basic tree needs which I  
24 have listed as moisture, temperature, light, and  
25 rooting medium, and those really are the basic needs

1       that site preparation is trying to provide for the  
2       trees.

3                   Q.   I understand that, as was the case in  
4       Mr. Hynard's and Mr. Waito's evidence, the silvics of  
5       the particular species vary in terms of their  
6       requirements for those particular matters?

7                   A.   Yes.   Depending on the tree species  
8       involved, it would have different requirements at  
9       different stages of its growth and, therefore, it is  
10      necessary to keep in mind the species being considered  
11      in the regeneration treatment and provide the best mix  
12      of conditions so that its moisture and temperature  
13      needs, particularly, are looked after.

14                  Q.   In your paper, Mr. Kennedy, you  
15      distinguish between the purpose of site preparation and  
16      site preparation objectives.   Could you just tell me  
17      what the difference is?

18                  A.   Yes.   I have listed them separately.  
19      The purpose being, as I say, to provide the basic tree  
20      needs and the objectives that I use -- when I use the  
21      term objectives I am referring to the specific site in  
22      the forest that you're preparing.

23                  Now, perhaps a more detailed, or an  
24      exchange of the words objectives would be the desired  
25      results that are being contemplated when you are



1 preparing a prescription for a specific site. So the  
2 objectives would be the desired results for an area.

3 Q. And I think you indicated in your  
4 earlier remarks that the objectives are not the same  
5 for all sites?

6 A. That's right. The objectives aren't  
7 the same for all sites and it's necessary to ensure  
8 that there is consideration of the specific conditions  
9 that are there. And I think it would be best to put an  
10 overhead up to outline what these objectives would be  
11 for sites in general.

12 Q. The overhead which is going to be put  
13 up is a reproduction of page 292 of the witness  
14 statement -- or the information comes from page 292.

15 A. I suggest that for any given site  
16 that these are the objectives for site preparation.  
17 Not all of them will be used on a particular site and  
18 there may be combinations of these.

19 This is just a straight listing of them.  
20 The redistribution; the alignment and, in some cases,  
21 the reduction of debris and the competing vegetation,  
22 reduction of that; reduction of organic mineral soil --  
23 sorry, organic soil; exposure of mineral soil and, in  
24 some cases, the mixing of both organic and mineral;  
25 control of spacing; and the modification of microsite

1 are all objectives of site preparation.

2 We will be coming back to those  
3 throughout the course of the slides where we are  
4 describing the ways in which the various pieces of  
5 equipment help to meet those objectives.

6 Q. Could you expand on the first  
7 objective of aligning and redistributing the slash and  
8 indicate why that's done?

9 A. Okay. The reasons we do -- the  
10 reasons we have this for an objective is to increase  
11 the amount of area that's is available for treatments,  
12 for planting or for seeding by aligning the slash,  
13 making more area available.

14 It improves the microsite conditions, it  
15 can affect -- which can be affected by the temperature  
16 and sunlight available, the amount of shade that could  
17 be present, providing growing space and to avoid  
18 physical competition. It's to make the site more  
19 receptive for tree growth essentially. One of the  
20 objectives can be to redistribute cone-bearing slash.

21 You will recall that Mr. Hynard spoke of  
22 jack pine. Mr. Waito I believe was describing the  
23 scarification for natural jack pine being a suitable  
24 treatment west of Manitouwadge. This would be one of  
25 the objectives of redistribution of a cone-bearing

1 slash.

2 Q. Now, you indicate at page 293 of your  
3 evidence that too much post-harvest debris can cause  
4 problems with some of the matters that you have just  
5 referred to, yet in your evidence you've also indicated  
6 that a certain amount of debris can be beneficial.

7 Under what circumstances would you  
8 consider it beneficial to have debris left on the site?

9 A. The one I was just referring to is  
10 perhaps the best example that under the conditions  
11 where you are prescribing to use natural regeneration  
12 it can be beneficial to leave the slash on the site  
13 that has the cones and conduct a light mechanical site  
14 preparation treatment to distribute those cones evenly  
15 over the area.

16 Also inherent in a prescription of that  
17 is the recognition of the silvics of the species where  
18 the cones are there and there is a suitable amount of  
19 them to provide a regeneration source.

20 Q. And is that a practice which is  
21 limited to jack pine?

22 A. Yes. The results that have been  
23 obtained is limited to jack pine in the way I have  
24 described it, yes.

25 Q. Thank you. In relation to the second

1 objective, could you describe why the reduction of  
2 competing vegetation may be an objective of site  
3 preparation?

4 A. Yes. One of the obvious ones of  
5 having reduction of competing vegetation as an  
6 objective is to provide a physical space for the tree  
7 to grow in. Competing vegetation can be both a  
8 physical barrier for trees to grow and also compete  
9 with crop trees for tree root space, for moisture and  
10 for nutrients. It is also possible that competition  
11 can create too much shade which can lead to undesirable  
12 temperatures both for seed germination and for seedling  
13 establishment.

14 Physical damage can also result from too  
15 much vegetation on a site where the competition can  
16 cause whipping of the seedlings and which could result  
17 in scarring of the tree and causing opportunity for  
18 fungal infection and can also lead to loss of the blood  
19 just through physical damage.

20 Q. Look at the next three, I guess,  
21 objectives that you've got on your overhead. Why might  
22 the reduction of organic matter, or the exposure of  
23 mineral soil, or the mixing of mineral and organic  
24 matter be an objective of site preparation? Why would  
25 you want to do that?



1                   A. I would like to do that to make the  
2 site more amenable for meeting the tree's basic needs,  
3 providing an acceptable rooting medium is one of the  
4 reasons. In areas where there is thick duff, it may be  
5 impossible for the tree -- for a seed that is  
6 germinating for the root radical to penetrate that  
7 duff. Mixing of the organic and mineral can improve  
8 the moisture holding capacity of the soil. There can  
9 be enhanced nutrient release with the mixing as well  
10 and improved conditions for seed germination, providing  
11 the right mix of moisture and temperature.

12                   Q. Why is the control of spacing an  
13 objective?

14                   A. Well, spacing reduces the  
15 intraspecific competition or the competition within the  
16 stand and this can lead to improved growth and enhance  
17 product size and quality. That is to say, that we  
18 don't want the trees spaced too wide apart as to  
19 promote heavy branching and poor stem form; we don't  
20 want them too close together or else we will not have  
21 sufficient diameter growth.

22                   Q. Just going back for one moment to the  
23 reduction of the organic matter or the exposure of  
24 mineral soil. You indicated that one of the reasons  
25 was to provide an acceptable rooting medium and you

1 made use of the term root radical. You said that the  
2 seed might not be able to extend a root radical, I  
3 think, long enough. What are you referring to?

4 A. There I'm talking about the first  
5 signs of growth on a seed when a seed germinates,  
6 there's an extension of the root, and root radical is  
7 the term used to describe that particular part of that  
8 germinating seed.

9 Q. Now, modification of the microsite is  
10 identified as a site preparation objective. Could you  
11 explain that particular objective?

12 A. Yes. It is sort of the indirect  
13 effects of the physical alterations of the site. It  
14 could best be thought of as the cumulative effects of  
15 site preparation, changes to the soil conditions and  
16 changes to the microclimate.

17 For instance, it would include altering  
18 the ground surface temperature, altering the soil  
19 temperature, moisture levels, light intensity, and  
20 nutrient availability. All aspects of providing for  
21 the tree's basic needs as I outlined earlier.

22 Q. Now, you have reviewed what the  
23 objectives might be on a particular site for site  
24 preparation. Could you indicate how one goes about  
25 achieving those objectives?

1                   A. Yes. There are three forms of site  
2 preparation used in Ontario: Mechanical site  
3 preparation, chemical site preparation, and prescribed  
4 burning.

5                   Q. And if we turn to page 322 of the  
6 witness statement, you have a graph which indicates the  
7 percentage of those three -- that each of those three  
8 methods are used as a site preparation method. Perhaps  
9 you could just go through that?

10                  A. This graph illustrates the amount of  
11 the treatments that have occurred during the past  
12 period from '78 to '88. It shows the relative amounts  
13 of the three methods. You can see that mechanical, by  
14 far, is the largest method employed in the province  
15 which accounts for 84 per cent of the total area.

16                  This particular graph is showing for all  
17 the treatments that are reported in our statistics --  
18 our annual statistics books, which includes a small  
19 area outside of the undertaking which would be  
20 insignificant as far as this graph is concerned. You  
21 will also note that in current years that chemical and  
22 prescribed burning methods of site preparation are in  
23 equal amounts to approximately 8 per cent.

24                  Q. Now, are the methods that -- are  
25 these three methods equally suited to all sites?

1                   A. No, they're not. The choice of a  
2 particular method primarily depends upon the site  
3 conditions present. The choice of the method would  
4 depend upon the particular site and consideration of a  
5 variety of factors and, in some cases, it may be  
6 desirable or even necessary to conduct more than one  
7 form of site preparation on a site in order to achieve  
8 the desired results.

9                   Q. Can you give an example of where more  
10 than one site preparation method might be required?

11                  A. Yes, I think it's best to perhaps  
12 describe a site. If you could visualize a jack pine  
13 working group where there is, say, 40 per cent of  
14 balsam fir content in it and the area has been clearcut  
15 for both species being harvested, the result on that  
16 site would be a heavy slash loading or a heavy amount  
17 of slash.

18                  And if the objective was to maintain that  
19 area in the jack pine working group through planting,  
20 the forester would be faced with considering the amount  
21 of jack pine slash on the site, as well as the heavy  
22 branching -- or sorry, the fine branching that exists  
23 on balsam fir.

24                  The fine branches of the balsam fir can  
25 become a physical obstruction to mechanical site



1 preparation and the forester may contemplate the use of  
2 prescribed burning in order to reduce the slash loading  
3 and may further consider a follow-up treatment of  
4 mechanical site preparation to provide suitable spots  
5 for planting.

6 So in that particular situation it would  
7 be reasonable to consider both the prescribed burn and  
8 a mechanical treatment in order to cope with the slash  
9 loading that is on that site and achieve the objectives  
10 of keeping the area in the jack pine working group.

11 Q. Okay. If we could turn our attention  
12 to the first method that you want to deal with here is  
13 mechanical. How are you going to go about describing  
14 that particular site preparation method?

15 A. I'm going to be choosing a series of  
16 slides and interjecting some of the comments from the  
17 text of the evidence, the written text, and I am going  
18 to be using the slides as a backdrop to provide  
19 examples of some of the information that's in there.

20 I believe that this will assist the Board  
21 in the understanding of the use of the equipment to  
22 meet the objectives that we have stated. I think it is  
23 important that the Board have an opportunity to have a  
24 look at the variety of equipment that we have at our  
25 disposal that allow us to treat the sites that we have.

1                   However, I think that there is a caution  
2           to go along with this, is that we are not intending to  
3           show all the various pieces of mechanical equipment  
4           that are available in the province, nor do I want to  
5           leave the impression that it's necessary for every  
6           forester to have at his immediate disposal one of each  
7           of the pieces of equipment that will be seen today.

8                   Rather, that it's necessary to try out  
9           pieces of equipment from time to time and to employ  
10          those pieces of equipment that have been given  
11          satisfactory results for that particular area that you  
12          are dealing with.

13                   Q.   What type of machinery is used in  
14          mechanical site prep?

15                   A.   Well, the machinery involved -- I  
16          think I will switch the slides and start into those in  
17          order to answer that question.

18                   Q.   Okay.

19                   MR. FREIDIN:   Now, Mr. Chairman, perhaps  
20          before we start those, I should file the hard copies of  
21          the photographs which appear in Mr. Kennedy's paper  
22          which is Document No. 3 of the witness statement, and  
23          perhaps that can be given the next exhibit number.

24                   THE CHAIRMAN:   All right.   That will be  
25          Exhibit 554.

1       ---EXHIBIT NO. 554: Hard copy of photographs  
2                               found in Document No. 3, Mr.  
                             Kennedy's paper.

3                       MR. FREIDIN: Could we also at this time  
4 perhaps file the photographs which appear in Mr.  
5 Waito's paper, Document No. 2.

6                       THE CHAIRMAN: Sorry?

7                       MR. FREIDIN: I would like to mark as an  
8 exhibit now the photographs which are found in Document  
9 No. 2, Mr. Waito's paper. We didn't have an exhibit  
10 number reserved for that. We had one reserved for Mr.  
11 Hynard's.

12                      THE CHAIRMAN: All right. So that will  
13 be Exhibit 555.

14       ---EXHIBIT NO. 555: Hard copy of photographs  
15                               found in Document No. 2, Mr.  
                             Waito's paper.

16                      MR. FREIDIN: And I also have the  
17 photographs from Mr. Hynard's paper which is Document  
18 No. 1, and that has already been given Exhibit No. 541.

19                      And these exhibits, Mr. Chairman, are  
20 copies of all of the photographs which are in the  
21 witness statement, not just those which were shown as  
22 slides.

23                      Q. Okay, Mr. Kennedy, I understand that  
24 you are going to describe the type of machinery that is  
25 used?

1 MR. KENNEDY: A. Yes. There are two  
2 forms to the machinery that are used. We refer to them  
3 as prime movers and implements. The prime movers are  
4 those that are used to power the equipment to pull,  
5 push or drag the implements across a site.

6 By way of implements there are -- sorry,  
7 by way of prime movers there really are two types;  
8 those that are a tracked vehicle and those that are  
9 wheeled. This is a tracked vehicle commonly referred  
10 to as a bulldozer and the tracks are here which are  
11 used, the way in which the machine gets traction.

12 In the case of pushing equipment across  
13 the site, it's usually attached at the front here and  
14 referred to as front-mounted equipment or at the rear  
15 when we talk of rear-mounted equipment.

16 I understand that Mr. Oldford has made  
17 reference to the safety features of logging equipment  
18 in general and you can see that, of course, this  
19 equipment has the same kind of safety considerations  
20 for the operator.

21 Q. And I understand that's photograph  
22 No. 1?

23 A. That's right. This is photograph No.  
24 1 on page 327.

25 Q. And as you go through these, Mr.



1 Kennedy, perhaps if you can just indicate which  
2 photograph we are looking at, that would be helpful.

3 A. Very good. This is a second form of  
4 prime mover, the wheeled skidder. This is photo No. 2.  
5 This machine is primarily used for harvesting, and I  
6 believe you have seen a number of pictures of it in  
7 Panel 10.

8 This particular machine has chains on the  
9 tires, which I also understand has been mentioned in  
10 Panel 10 as another means of ensuring that the machine  
11 has traction. The skidder is used most often for using  
12 rear-mounted implements and we will be seeing a number  
13 of those and they are attached at the rear of the  
14 machine here either through this arch -- logging arch,  
15 or attached directly to the machine.

16 Typical -- this is photo No. 3. Typical  
17 site after harvesting. This is a jack pine area when  
18 harvested. There is a considerable amount of jack pine  
19 slash on the ground here, piles of it on the right-hand  
20 side of the photograph, and throughout the photograph  
21 you can see the jack pine cones that are attached to  
22 the slash.

23 So, okay. One of the objectives would be  
24 to ensure that we take this site and provide a suitable  
25 physical environment for the establishment of trees and

1 tree seeds.

2 Fresh slash on sites such as this is  
3 quite springy in that it requires a certain amount of  
4 drawing out through the course of the season to enable  
5 it to be cured or become brittle for mechanical site  
6 preparation to have its greatest effect. This would  
7 also be true of the use of prescribed burning in that  
8 freshly cut slash would not be sufficient burning  
9 material because of its moisture content.

10 Q. Mr. Kennedy, you indicated that there  
11 are front-mounted implements and rear-mounted  
12 implements used in the mechanical site preparation.  
13 Could you briefly describe those implements?

14 A. Yes. I think perhaps the best way to  
15 describe them is just to get into the various forms of  
16 equipment and have a look at them.

17 Front-mounted equipment such as this one,  
18 which is photo No. 7 -- photo No. 7 in the statement of  
19 evidence on page 329. This is a front-mounted shear  
20 blade mounted on a tracked prime mover.

21 This kind of operation commonly occurs in  
22 the winter season on frozen ground and, again, we are  
23 on a tracked prime mover and the shear blade itself is  
24 here (indicating) and you can just make out in the  
25 foreground of the picture the area where the machine

1 has just passed over.

2 This is photo No. 8, an area site  
3 prepared by that shear blade. You can see that there  
4 is debris and slash hve been pushed off to the side and  
5 piled in wind rows, there are two of them here,  
6 (indicating) and that the area in the middle of the  
7 photograph is relatively slash free, there has been  
8 exposure of organic matter and some mixing occurring,  
9 minor amounts of mixing on the side. There has been a  
10 removal of the competition that existed there prior to  
11 the treatment.

12 It has provided good, easy access for  
13 planters, which is one of the other benefits of -- or  
14 one of the other inherent objectives of site  
15 preparation is realignment of the slash to allow access  
16 for planters.

17 This treatment would be commonly used to  
18 prepare sites for both natural and planting -- or  
19 natural and artificial treatments such as planting. So  
20 the mode of action here is really pushing the debris  
21 off to the side and some reduction of organic matter.

22 Q. Is there any particular reason that  
23 shear blading is done in the winter?

24 A. It's done in the winter to give  
25 better access to sites by way of using equipment like

1       that to be able to take advantage of the frozen ground  
2       and provide better travel as well as winter shearing,  
3       better ability to peel off, as I would call it, the  
4       organic matter.

5                       This is an individual standing in one of  
6       the strips left by that shear blade. I would like to  
7       point out the relationship of the piles to the  
8       individual and just comment on the fact that these  
9       piles will subside in the spring when the snow melts,  
10      something that you may not have considered when you  
11      first looked at it, but there's a fair amount of snow  
12      that is mixed into these wind rows.

13                    Q. And that is photograph No. 9?

14                    A. That's correct, photograph No. 9. I  
15      also point out that there is some black spruce in the  
16      background of this particular site. So in addition to  
17      the planting that will occur here, there will be an  
18      added benefit of some natural black spruce or  
19      volunteers that will add to the black spruce stocking  
20      on this area. This would be considered acceptable  
21      seedbeds for black spruce.

22                    Q. I understand that there are different  
23      types of blades used in site preparation; is that  
24      correct?

25                    A. Yes, there is. There's a variety of



1 blade types that can be used, but before going on to  
2 one of the form of blades, I thought I would show this  
3 slide which is slide No. 34 in the statement of  
4 evidence.

5 This slide depicts corridors that are  
6 resulting from using that shear blade. This is similar  
7 to the striations that Mr. Hynard referred to in block  
8 cuts yesterday. You can make out the corridor pattern  
9 or blading paths that have taken place on this site.

10 There's a large variety of blades and  
11 plows that are available for site preparation and I  
12 have no intentions of going into more than these two.  
13 This is just one example to show the variety of the  
14 kind of plows that are available.

15 This particular one is from B.C., it's  
16 used in Ontario's on occasion called a C & H plow and  
17 this is the plow area here. You will note that this  
18 particular one is being used in a frost-free season.  
19 It has that good success. This is the kind of area  
20 than can result.

21 This is photo No. 15, which would be  
22 exposure of mineral soil in this area.

23 MR. MARTEL: What was that picture  
24 number, please?

25 MR. KENNEDY: That's picture No. 15 on

1 page 233.

2 MR. MARTEL: No, the previous one?

3 MR. KENNEDY: I beg your pardon, the  
4 previous one was photo NO. 14.

5 MR. MARTEL: Thank you.

6 MR. KENNEDY: That's photo No. 14 on page  
7 33 which is an example of a C & H plow and photo No.  
8 15, the treatment that would have -- or sorry, the site  
9 preparation that would have resulted from the use of  
10 that plow. Exposure of mineral soil, there's  
11 competition-free area now and the slash has been  
12 aligned off to the side. Those are views of  
13 front-mounted equipment.

14 Going on to another form of front-mounted  
15 equipment this is photo No. 10. We have chosen this  
16 one to represent the group of rakes which are used in  
17 site preparation equipment. This particular one is a  
18 front view of Young's teeth and the Young's teeth are  
19 referring to these two teeth that are attached to the  
20 blade on this prime mover.

21 This particular view is with the blade in  
22 the raised position. It was taken -- or the blade was  
23 raised for the purposes of taking these photographs to  
24 illustrate that the teeth, if you will, are protruding  
25 below the blade and through operator control, this use

1 of equipment can be used to skim over the surface. The  
2 straight part of the blade can result in reduction of  
3 competing vegetation and the teeth part led to the  
4 mineral soil and provide some mixing.

5 MR. FREIDIN: Q. Is there any  
6 significance to the distance that those two teeth are  
7 apart or separated?

8 A. Yes. Any number of teeth could be  
9 affixed to the blade. This particular operation is  
10 being done for planting, so that one of the objectives  
11 that I had listed earlier of site preparation is to  
12 provide a level of spacing control. So the distance  
13 between these two blades is set out to assist in the  
14 controlling of spacing during the planting operation.

15 Moving on to photo No. 11 --

16 Q. Just before you go on, could that  
17 Young's teeth -- could those Young's teeth be used for  
18 preparing a site for natural regeneration as well as  
19 planting?

20 A. Yes they can be. In the case of  
21 using them for natural, I would be inclined to use more  
22 than the two teeth on the blade such as that in order  
23 to provide a better mixing and increased area for  
24 receptive seedbeds.

25 This is photo No. 11, it's showing the

1 blade in action. The tractor has passed over the area  
2 that is in the foreground of the picture and there has  
3 been some mixing of organic matter and mineral soil  
4 here in the foreground. And you can see some slash  
5 alignment although in this site there is not heavy  
6 slash.

7 Photo No. 12. The machine has just  
8 been -- just turned around at the end of a run here  
9 into a strip and is starting back in, lowering the  
10 blade and coming down this area. Again, you can see in  
11 the foreground some mixing, some alignment and the area  
12 being available for planting. You can see that there  
13 is some control of spacing provided by the way in which  
14 the two teeth have dug into the ground at a set  
15 distance apart. It would be then up to the planter to  
16 look for acceptable planting spots within that and it's  
17 spaced about two metres apart and, thereby, providing  
18 control of the spacing.

19 The next category of equipment that is  
20 used or implements used is rear-mounted equipment.  
21 This is photo No. 16, page 333 of the statement of  
22 evidence. It's a rear view of a disk trencher. This  
23 particular machine is mounted on a skidder.

24 This is one of the earlier models that we  
25 had tried out in Dryden several years ago and I put it



1 in just for comparative purposes for the disk trenchers  
2 that you'll see in subsequent slides and in the  
3 training video that we are using later today.

4 The mode of action on this particular  
5 piece of equipment, diskings, is these rotating disks  
6 that are at the rear of the machine. You will notice  
7 similar placement in terms of distance apart. They  
8 also provide some spacing control that's inherent in  
9 the design of the equipment, and you can see the area  
10 that has been site prepared in the furrow left by the  
11 rotating disk.

12 There's been a mixing of organic and  
13 mineral, and exposure of straight mineral soil. This  
14 equipment can also align debris and reduce duff in this  
15 fashion. It's used quite often on rocky sites as it  
16 has the ability of dislodging stones and creating  
17 acceptable seedbeds. And this machine has been used  
18 successfully for preparing sites both for planting and  
19 for natural regeneration.

20 This is photo 17. There is very little  
21 slash on this site, but I included this slide just to  
22 indicate that it is possible to achieve grass control  
23 with this equipment as well. And, again, it is a good  
24 slide showing the mixing that has occurred and turning  
25 over while the disk is rotated while you forward travel

1 the machine.

2 MRS. KOVEN: Excuse me, Mr. Kennedy. Did  
3 you say we are going to be seeing all of this in the  
4 video?

5 MR. KENNEDY: Yes. You are going to see  
6 many of the pieces of equipment in action in the video,  
7 yes.

8 MRS. KOVEN: Maybe we could skip over  
9 quickly the things in the slides that we are going to  
10 see in the video.

11 MR. KENNEDY: Very good.

12 This particular trencher is one of the  
13 newer models of trencher. It's built stronger and  
14 heavier and it's capable of providing suitable site  
15 preparation in heavier slash. You can see - excuse me,  
16 this is photo No. 18 - you can see that there is a  
17 heavy slash condition in the foreground of this  
18 picture. It can provide good slash alignment and  
19 mixing of mineral soil.

20 One of the added benefits of this  
21 particular piece of equipment is that the disks on this  
22 particular one are attached on arms and can be put into  
23 a raised position and can allow for ease of travel  
24 between blocks, between treatment blocks depending on  
25 the type of -- distance between them.

1                   This is photo No. 19. This trencher can  
2                   operate in light snow conditions. I thought that I  
3                   would include this one in order to just show the  
4                   contrast of the good mixing that's occurring and the  
5                   upturning of the mineral soil. It shows up very nicely  
6                   against the snow conditions.

7                   The video does contain some more  
8                   information on this particular one, piece of equipment.

9                   This is phot --

10                  MR. FREIDIN: Q. No 20.

11                  MR. KENNEDY: A. Excuse me, I didn't jot  
12                  that number down. I believe it is photo No. 35 on page  
13                  343. Yes it is, photo 35 on 343.

14                  This is an aerial view, something that  
15                  you won't see in the video, an aerial view showing the  
16                  concentric patterns that have occurred through the use  
17                  of the disk trencher. The disk trencher has been --  
18                  and machine have been used in a concentric fashion here  
19                  and you can just make out the striations again of the  
20                  spacing of the two disks furrows that have been created  
21                  using this particular equipment.

22                  This site has been prepared for seeding.  
23                  There are other patterns that can be used in site  
24                  preparing. Parallel lines to the road are often used  
25                  for planting along the line of the vein that I'm using

1 to allow for ease of mobility -- or ease of access to  
2 the site and movement of planting stock within it.

3 This is another group of rear-mounded  
4 implements. This is a barrels and chains. This is  
5 photo No. 20, page 335.

6 This is a tractor prime mover with  
7 barrels and chains as the implement scarifying the  
8 site. This particular site has been prescribed burned  
9 and, hence, you can see blackened surface layer and  
10 some blackened slash remaining on the site.

11 This barrels and chains are common  
12 equipment for use in breaking up slash or  
13 redistributing slash. It can also serve to expose  
14 organic -- or sorry, expose mineral soil and provide  
15 some mixing of the organic matter.

16 This is photo 21. This is a side view of  
17 shark fin barrels. These are the barrels here  
18 (indicating). The barrels are called shark fin barrels  
19 because of the fins that are protruding from the side.  
20 The fins are welded on in a diagonal fashion which  
21 through the forward travel of the machine causes the  
22 barrels to twist and turn.

23 The barrels are linked together with  
24 anchor chains and they can rotate individually. In the  
25 foreground of this shot of this slide is an example of



1 the results of the type of site preparation that can be  
2 achieved by the barrels and chains equipment. There is  
3 good slash alignment and there is good mixing of  
4 organic and mineral in this particular site.

5 Q. Now, I understand some of those  
6 barrels don't have the shark fins on them; is that  
7 correct?

8 A. That's correct. There are a variety  
9 of sizes of barrels and chains that can be put together  
10 into a hook-up and there are other shapes of barrels  
11 that are available, some just have -- are missing fins  
12 and have a flange at the end and are used in conditions  
13 where there is little slash and little organic matter  
14 on the area and they can provide an effective means of  
15 site preparing for sites under those conditions.

16 Q. I didn't hear the last answer, so I  
17 may be repeating -- or asking you to repeat yourself.  
18 What would be the type of reason that you would choose,  
19 you know, one barrel with shark fins and another one  
20 without and different weights of barrels?

21 A. The reasons would be, primarily the  
22 features on the site, primarily the slash features and  
23 the amount of organic matter or duff layer and the  
24 objectives of the site preparation.

25 If you are looking at planting, you want

1 to ensure that there is a good alignment of the slash  
2 and the tendency would be to use barrels that are heavy  
3 enough to align the debris. If you are looking at,  
4 say, scarifying for natural for jack pine, and the  
5 descriptions we have given earlier of that treatment,  
6 you may go to a lighter set of drags which are the name  
7 referring to this type of equipment just to provide a  
8 breaking up and distribution of the slash.

9 Q. Okay.

10 A. This is photo No. 22 and here we are  
11 looking at a furrow that has been left by the barrels.  
12 And in the area to the right of the picture is the area  
13 that has been site prepared; the area on the left-hand  
14 side of the picture is the area that has been site  
15 prepared by prescribed burning and is yet to be treated  
16 by mechanical.

17 In this particular area you can see a  
18 good alignment in the slash here (indicating) and this  
19 site is being prepared for planting.

20 This is a close up slide of that furrow.  
21 This is photo No. 23. You can see there has been good  
22 mixing of mineral and organic matter on the sides of  
23 this furrow and that the smooth nature of that furrow  
24 has been created by having a stabilizer barrel left at  
25 the end of the string of barrels or through the use of

1 an anchor chain and some heavy links at end.

2 The reason that we try to achieve that is  
3 that it does provide a small level of compaction of the  
4 area that has just been turned up with the organic and  
5 mineral soil, presses it back together very lightly,  
6 takes some of the air out and ensures that it's an  
7 acceptable site for both planting and/or seeding  
8 depending on the case.

9 Q. And you say that's a close up of the  
10 furrow shown on the previous slide?

11 A. Yes, it is.

12 Q. Could you just go back to the  
13 previous slide.

14 A. This is referring to this area in  
15 here.

16 Q. Thank you.

17 A. This is a close up of another area on  
18 that same project. This is photo No. 24. I included  
19 it just to show some different mixing that's occurred  
20 in an area that has a higher moisture content and to  
21 point out the early greenout that's occurring after  
22 this prescribed burn that's on this site of other  
23 vegetation. This photo was taken approximately three  
24 weeks after the prescribed burn.

25 As I mentioned, there are other forms of

1 barrels and chains. This particular photo I have taken  
2 and included here to comment on the chain that is  
3 protruding from the back of this barrel. This is a  
4 spiked anchor chain. By anchor chain we are referring  
5 to, in fact it is chain that is used by ships such as  
6 those that are used in the Great Lakes and come into  
7 port here in Thunder Bay.

8               These in fact are links of chain used for  
9 that purpose, of holding their anchors in place. To  
10 turn them into scarifying equipment, lugs or spikes  
11 have been welded onto those chains. Often they are put  
12 together at opposite angles and that this has the  
13 ability of mixing and breaking up slash and can be used  
14 for that purpose.

15              The chains can be used alone without  
16 barrels to provide a very light site preparation such  
17 as what might be used in cone scattering.

18              This is photo No. 36. I thought it would  
19 be helpful to include this slide. Again, a shot that  
20 is not available in the video which depicts the kind of  
21 pattern that can be achieved with the barrels and  
22 chains, a form of reference really. You see some minor  
23 striations that are present in this slide.

24              The other forms of rear-mounted equipment  
25 is scalpers or intermittent scalpers, patch scarifiers.



1 This is slide No. 26 which is an aerial view of a  
2 Bracke badger in operation. There's a fair amount of  
3 debris on this site after harvesting. The stand was an  
4 older stand and there's a fair amount of dead trees in  
5 the stand that were on the ground and it has heavy  
6 slash conditions.

7 So this machine is a scalper type  
8 implement, a Bracke badger. It's attached at the rear  
9 of the skidder and there are three separate machine  
10 frames in this particular machine arrangement. And the  
11 area that has been site prepared is in the foreground  
12 here. (indicating)

13 This type of equipment can't handle a lot  
14 of heavy slash in terms of branching, but it can do  
15 quite well with heavy logs as it tends to skip over  
16 them with the way that the matic teeth are and we will  
17 be seeing those in the next slide.

18 By the placement of the -- inherent in  
19 the machine design is the placement of these frames,  
20 machine frames that have teeth on them at a set spacing  
21 which can assist in providing spacing control. This  
22 machine can also be used in conjunction with a seeding  
23 device and can incorporate seeding at the time of site  
24 preparation.

25 The next photo is No. 28.

1 MR. FREIDIN: And the former one was 27,  
2 Mr. Chairman.

3 MR. KENNEDY: This photo 28 showing a  
4 close up of the matic wheels. These are the matic  
5 wheels here where I am pointing now (indicating).  
6 There are two sets on each machine frame and these  
7 together enter the soil and intermittently provide a  
8 scalp.

9 MR. FREIDIN: Q. And any particular  
10 reason for the intermittent scalping as opposed to the  
11 furrowing or the type of row that would be left by  
12 Young's teeth?

13 MR. KENNEDY: A. It's a different  
14 equipment design. It's used to provide a level of  
15 control of spacing right at the time of site  
16 preparation. It's viewed that the scalping is a good  
17 way of providing that control and providing the  
18 acceptable site conditions for the establishment and  
19 growth of the tree seeds.

20 Moving on to page -- or photo No. 29.  
21 This is an example of one of the scalps. The scalp is  
22 created by that kind of equipment. This slide  
23 illustrates good mixing of mineral and organic matter  
24 in the foreground here. (indicating) This whole,  
25 almost the entire area of the slide has been turned

1 over and mixed through the course of that scalping  
2 action. The slash has been moved off to the side and  
3 there has been vegetation removal.

4 Photo No. 30 is the next one I am showing  
5 now. This is a good photograph to illustrate a number  
6 of things. This is an older scalp. One of the items I  
7 would like to point out is the definition of where the  
8 scalp was originally. I would like draw your attention  
9 back to the question Mr. Freidin was just asking me in  
10 terms of the difference.

11 One of the primary differences in the  
12 scalping equipment versus those that produce furrows is  
13 that there is less disturbance with the scalping  
14 equipment, less disturbance on the overall site, but  
15 there is satisfactory disturbance, the intentional  
16 disturbance that is necessary to provide acceptable  
17 spot for the establishment of the tree.

18 In this case jack pine seed was loaded  
19 into that Bracke and has been deposited and resulted in  
20 this clump of jack pine. This is another example of  
21 how we could end up in situations with numerous stems  
22 on an area such as in the slides used yesterday by Mr.  
23 Waito and Mr. Hynard.

24 These jack pine I would estimate to be  
25 entering their third year of growth. You can see that

1 the shoots are just trying to elongate here.  
2 (indicating) There is also a volunteer jack pine or a  
3 germinant from natural on the foreground of this  
4 picture. I would like to also point out that there is  
5 amount of competition here on the side is alder which  
6 is not in competing with this jack pine at this time  
7 but certainly it may in future.

8 This is photo No. 37. I have included it  
9 in that if you look carefully you can see the  
10 intermittent patches that are created through scalping  
11 type equipment. You can still see that there is a  
12 definition in terms of control of spacing through the  
13 travel of the machine. Within the travel corridors of  
14 the machine, there are individual patches where the  
15 scalping wheels have come in contact with the ground  
16 and created some of the microsites for the  
17 establishment of both the tree seeds and seedlings.

18 Q. That is the end of the slides in  
19 relation to the mechanical site preparation methods,  
20 Mr. Kennedy?

21 A. Yes, it is and I have three more  
22 slides which I think I would like to show at this time.

23 Q. Okay.

24 A. These slides deal with the ground  
25 sprayer that is used in conjunction with chemical site



1 preparation. When we're talking chemical site  
2 preparation, there are two forms of it. It can be  
3 applied aerially or it can be applied on the ground.

4 This is photo No. 31 showing a ground  
5 sprayer. Again, we are using a prime mover as a  
6 wheeled skidder, and the chemical sprayer is this piece  
7 of equipment at the back. (Indicating) It's towed  
8 behind the skidder and there will be some better  
9 description and showing this machine in action on the  
10 video, so I won't spend long on it other than to  
11 indicate that this black box that is on the side of  
12 this machine is a radar unit which is used to gauge the  
13 forward speed of the equipment and to control the rate  
14 of application. This equipment is used where there  
15 is -- use of aerial is not feasible such as due to  
16 proximity to water courses.

17 This is photo No. 32, a rear view of that  
18 sprayer showing the boom and nozzle arrangement. This  
19 being the boom, the nozzles being placed here, here  
20 (indicating) and there is a separate set of nozzles in  
21 the middle which will be described in the video as a  
22 cluster nozzle.

23 It's a very rugged construction this  
24 piece of equipment and could also be used for release  
25 work, but in this particular case was being used for

1 site preparation work. The machinery is enclosed in a  
2 protective cage and there is a pump set up in the  
3 forward part of that.

4 This is photo No. 33, just a close up  
5 view of the type of cluster nozzle that was mounted in  
6 the middle of that machine.

7 Q. Now, Mr. Kennedy, are you going to be  
8 describing sort of the mode of action of herbicides or  
9 their effects in this panel?

10 A. No, I will not be. That information  
11 will be provided in Panel 12.

12 Q. Now, the third method of site  
13 preparation that you mentioned was prescribed burn and  
14 I understand that Mr. Elliott will be dealing with that  
15 in more detail following your evidence, but in a very  
16 general way, could you indicate the way that prescribed  
17 burning can assist in providing suitable conditions for  
18 tree establishment and growth?

19 A. Yes. One of the ways that prescribed  
20 burning is used to achieve those results that I talked  
21 about earlier, is through the reduction of debris and  
22 by that I'm referring to the reduction of the logging  
23 slash and downed material that is on the site.

24 It's also using to reduce the organic  
25 matter or the duff layer which may include some

1 exposure of mineral and can include the reduction of  
2 competing vegetation.

3 I think the prescribed burn that was --  
4 sites that were demonstrated in the series of slides I  
5 went through showing those barrels and chains in  
6 operation in fact show that there was very little slash  
7 left to compete with that mechanical equipment and  
8 there had been a level of duff reduction.

9 Q. Having described the various methods  
10 which are available to the forest manager to prepare  
11 the site, could you in a brief way, Mr. Kennedy,  
12 indicate the factors that are considered when you are  
13 making a decision as to which type of site preparation  
14 will be carried out?

15 MR. KENNEDY: Mr. Freidin, I think we  
16 have some mechanical problems.

17 THE CHAIRMAN: Mr. Freidin, do you want  
18 to take a break at this time so you can fix your  
19 machine?

20 MR. FREIDIN: Sure, thank you.

21 THE CHAIRMAN: Okay. We will break for  
22 20 minutes.

23 ---Recess taken at 9:45 a.m.

24 ---On resuming at 10:10 a.m.

25 THE CHAIRMAN: Thank you. Be seated.

1 MR. FREIDIN: Q. Mr. Kennedy, you were  
2 going to briefly outline the factors which are  
3 considered when making a decision as to which type of  
4 site preparation method would be carried out --

5 THE CHAIRMAN: What page is this on, Mr.  
6 Freidin, if it is?

7 MR. FREIDIN: Q. Mr. Kennedy, can you  
8 help me on that?

9 MR. KENNEDY: A. Yes, Mr. Chairman.  
10 These are the headings that are contained within the  
11 statement. Perhaps the best place to reference them is  
12 the Table of Contents, page 279. I simply repeated the  
13 Table of Contents, Section 3.

14 Q. Okay. I understand the one that you  
15 are -- you are only going to spend time on one of those  
16 in any detail, and that's specific site conditions.  
17 But could you perhaps just comment briefly on the  
18 management objectives?

19 MR. KENNEDY: A. Yes. I would just like  
20 to touch on these and indicate right at the outset that  
21 it's rather an iterative process when you are  
22 considering the factors that when you are developing a  
23 site preparation prescription that at any time the  
24 conclusion may cause you to go back and rethink the  
25 prescription and consider these.



1                   The management objectives then, simply  
2 put, would be the consideration of which commercial  
3 forest species are desired on the management unit which  
4 would be taking into account the silvicultural  
5 characteristics of the species, such as what was  
6 described by Mr. Waito and Mr. Hynard.

7                   By intended regeneration treatment, what  
8 I am referring to here in terms of prescription setting  
9 is at the site-specific level, talking of while you're  
10 in a stand proposing a prescription for that area, you  
11 are looking at the details of how you regenerate that  
12 site: Will it be cone scattering, or will it be  
13 planting. And that will affect the intensity of the  
14 site preparation treatment that you're proposing.

15                  So, in particular, you are looking at  
16 preparing a site for either seeds or seedlings. It has  
17 a bearing on the type, the choice and the equipment  
18 that you will be using.

19                  Q. When you use the term intensity of  
20 site prep, what do you mean by that?

21                  A. Again, I'm referring to such factors  
22 as the amount of mineral soil exposure. If I was  
23 looking at planting an area versus seeding an area, if  
24 the choice was seeding, I would require a higher amount  
25 of mineral soil exposure. So I would refer to that as

1 intensity of the treatment.

2 Specific site conditions is the one that  
3 I would like to spend a few moments on, and I have  
4 listed those here as the vegetation, soil features,  
5 topographic features and the slash features on that  
6 individual site. As I indicated in the opening remarks  
7 that these are the features -- sorry, these are the  
8 conditions that have the greatest amount of effect on  
9 your choice of method and your choice of equipment  
10 within mechanical.

11 Perhaps by way of explanation it would be  
12 helpful if I was to indicate the influence that these  
13 conditions would have on your choice of a method. For  
14 instance, if I was standing in an area that had heavy  
15 slash, I would naturally be inclined to consider  
16 prescribed burn; however, I would secondly consider the  
17 topographic features that are present and I would be  
18 concerned over if the topographic features were such  
19 that a prescribed burn could be carried out in a safe  
20 manner and achieve the objectives of providing the  
21 acceptable seedbed or planting spots.

22 I would also be concerned about the  
23 vegetation that is on that site, if I was looking at a  
24 prescribed burn, as to how much vegetation was there,  
25 what species it was and its distribution over the area.

1 and I would have not as great concern over the soil  
2 features as it would not be a direct bearing on the  
3 choice of prescribed burning.

4               However, if I was looking at proposing a  
5 chemical site preparation, I would be contemplating  
6 that on an area that had a high amount of vegetation  
7 that was competing with the crop trees. So I would  
8 essentially flip around the conditions or I would look  
9 more at the vegetation that was present; and, secondly,  
10 I would look at the topographic features which would  
11 influence my choice between an aerial or a ground  
12 chemical site preparation operation.

13              Thirdly, I would be looking at slash  
14 features to consider if it was possible to manoeuvre  
15 that ground sprayer that I showed in the slides through  
16 the area, if there are physical obstructions to it.  
17 And, lastly, I would be looking at the soil features.

18              Conversely, though, if I was looking at a  
19 mechanical site preparation treatment on an area, I  
20 would be looking at soil features and topographic  
21 features first and in conjunction; and, secondly, at  
22 vegetation and slash features and those in conjunction  
23 and how I would be able to match my equipment to the  
24 site in order to provide the best mix of mineral soil,  
25 organic or exposure of soil, competing vegetation to

1 provide an acceptable area for the establishment of the  
2 tree seeds or seedlings.

3 Q. Now, the next factor is economic  
4 factors?

5 A. Yes. Simply, the economics of  
6 conducting the operations is certainly one of the  
7 factors that influence the prescriptions, and I just  
8 add that I have included some relative costs of the  
9 various treatments in the statement.

10 For instance, mechanical equipment, I  
11 have indicated that there is a range of cost anywhere  
12 from \$190 to \$440 a hectare, and chemical site  
13 preparation can be in the neighbourhood of \$120 a  
14 hectare.

15 MR. FREIDIN: You will find that at page  
16 310 and 311 of the statement, Mr. Chairman.

17 MR. KENNEDY: Of course, it is necessary  
18 then to consider the economics of the choice of  
19 treatment, particularly if a combination of treatments  
20 are in mind.

21 The environmental consideration and  
22 consideration of other users is part of the  
23 prescription setting as well, and I have provided two  
24 examples in the statement of evidence. Examples can be  
25 found on page 301 and on 311.



1                   For instance, if a proposal is being put  
2 forward for slopes near water courses, it would be  
3 necessary to consider the direction of travel for the  
4 machinery, if mechanical is being contemplated, in  
5 order to prevent the potential for the introduction of  
6 sediment to the water course. Or another example would  
7 be in the case of looking at a prescribed burn  
8 proposal, it would be necessary to consider the  
9 protection of such features as critical moose habitat  
10 within the area or adjacent to the area.

11                   So certainly the environmental  
12 considerations are part of the proposal.

13                   MRS. KOVEN: Excuse me. Is there a  
14 variety of conditions that would promote the fastest  
15 regeneration approach; for example, planting a tree  
16 would cause faster regeneration than seeding, and is  
17 there a combination of mechanical site preparation  
18 methods that would promote that as well, or is that  
19 totally dependent on the site conditions?

20                   MR. KENNEDY: It's really totally  
21 dependent upon the site conditions that you are faced  
22 with. Foresters are going out there with the intention  
23 of looking at every site and deciding on the best  
24 treatment that can be given on that site, based on  
25 those sites conditions.

1                   In the case of mechanical, if planting  
2                   was one of the options you were considering, then you  
3                   would be looking at mechanical site prep in a fashion  
4                   that would provide you with an acceptable planting  
5                   spot.

6                   For instance, there would be -- you would  
7                   be concerned about providing not only a plantable spot  
8                   in terms of, say, exposed mineral soil if you're  
9                   looking at planting jack pine, or you'd also be looking  
10                  at a site that is competition free to have that tree  
11                  get established quickly and you would be looking at  
12                  providing some level of slash alignment or debris  
13                  alignment to allow for the access of the planter  
14                  through the site.

15                  MR. FREIDIN: Q. Are there any other  
16                  comments you would like to make on the environmental  
17                  factor materially?

18                  MR. KENNEDY: A. Just, I suppose, a  
19                  general comment in that I think that inherent in our  
20                  prescription setting is a concern for the environment  
21                  and in many ways there is a consideration of it in the  
22                  design of the equipment originally.

23                  And I say that because our intention or  
24                  purpose with site preparation is to establish the  
25                  suitable environment, physical environment for the tree

1 growth and establishment, and inherent in that then is  
2 a concern for the environment because, after all, the  
3 trees will have a tendency to not get established under  
4 the same conditions as you would be concerned with such  
5 as, over-site preparation may result in some drying out  
6 of the microsite is an example.

7 Q. Okay. How do you as a forester cope  
8 with all of these factors? Do you consider sort of  
9 each one each time you look at a site? I mean, do you  
10 go through that exactly the way you've described it?

11 A. First off I would say no, that we  
12 don't go through them each time, but on a second look  
13 at it I have also concluded that in many ways we do.

14 So it is sort of a yes and no answer,  
15 that, on the basis of our experience, I believe we go  
16 through those considerations when we are looking at  
17 each site. It is intuitive I think in our training and  
18 our experience. It's not done in a clinical fashion of  
19 looking at each one of those factors when you are on a  
20 site.

21 The basis of experience that you have and  
22 the results obtained on similar sites allows you to  
23 really lump those factors into the prescription-setting  
24 process, as well as, you can benefit from the  
25 experience of others and refer to documentation to

1 allow to you to help to arrive at the conclusions of  
2 what is best suited for those sites that you are  
3 dealing with.

4 MRS. KOVEN: To what extent is your  
5 decision limited by the availability of this mechanical  
6 equipment on any management unit?

7 MR. KENNEDY: As I was indicating in the  
8 opening remarks that it's not necessary to have the  
9 full range of equipment available on every site or  
10 available to you in every location of the province. I  
11 would say that there has been no problems in people  
12 getting equipment that allows them to treat the sites  
13 that they are commonly operating on.

14 For instance, in Dryden where my  
15 experience has been with site preparation, we're able  
16 to have available to us a range of equipment within the  
17 region that was suitable to the conditions that we had  
18 there and we weren't lacking for any piece of  
19 mechanical equipment to allow us to treat those sites.

20 MRS. KOVEN: This is provided by  
21 contractors?

22 MR. KENNEDY: The program has been  
23 developed in the way that contractors are providing  
24 primarily the prime movers. The site preparation  
25 implements themselves originally were owned by the



1 Crown, some are now available through contractors as  
2 well, but there has been a gradual move from, I would  
3 say, Crown ownership of the implements to those being  
4 available through contractors in the private sector.  
5 And certainly in the case of FMA agreements, the FMA  
6 holder does own equipment of their own.

7 MR. FREIDIN: Q. Now, Mr. Kennedy, we  
8 have this video which you indicated was a training  
9 video. Could you just briefly indicate why it has been  
10 included as part of your evidence?

11 MR. KENNEDY: A. We have included the  
12 video because it does show the action of the site  
13 preparation equipment and I think it's important for  
14 the Board to see that equipment in motion and get an  
15 understanding -- a better understanding of how the  
16 actual objectives are achieved, such as the mixing of  
17 mineral and organic. It becomes quite obvious when you  
18 see the machinery in action. It also gives a better  
19 understanding of the way in which the operations are  
20 carried out.

21 The video, though, is a training video,  
22 it is used to train foresters. So inherent in its  
23 descriptions - because there is a text that Mr. Freidin  
24 referred to, there is a transcript that accompanies the  
25 video - but as a training aid, it's implicit in the

1 understanding that the foresters and technical staff  
2 that are viewing the film have an understanding of some  
3 of the comments that are made in there.

4 So there is some technical reference to  
5 such things as the plantable spots being achieved, the  
6 degree of mineral soil exposure being achieved and some  
7 of the comments on the machinery itself, prime movers.  
8 Comments of that nature I have not included in my  
9 discussion.

10 I don't intent to interrupt the video in  
11 any fashion, I intend to let it just run on its own and  
12 I think it would be quite helpful in a summary form to  
13 tie some of this site preparation evidence together.

14 MR. FREDIN: Mr. Chairman, perhaps we  
15 could reserve an exhibit number for the video.

16 THE CHAIRMAN: All right. That will be  
17 Exhibit 556. What is this a VHS format?

18 MR. FREIDIN: VHS, yes.

19 ---EXHIBIT NO. 556: VHS video presentation.

20 MR. FREIDIN: Is everything set up, Mr.  
21 Kennedy. Do we have to move anything?

22 MR. KENNEDY: Just yourselves.

23 MR. FREIDIN: All right. Well...

24

25

1                                    VIDEO PRESENTATION

2                                    The majority of the units were filmed in  
3                                    the Dryden district during 1985 and 1986. The  
4                                    production figures, plantable spots, mineral soil  
5                                    exposure obtained represents specific projects and are  
6                                    relative to prime mover, scarifier condition,  
7                                    adjustment, operator confidence, contract objectives,  
8                                    et cetera.

9                                    The purpose of this film is to  
10                                   demonstrate the potential of various scarifiers under  
11                                   specific site conditions.

12                                   The first machine is a TTS Delta  
13                                   Trencher. A prime mover, a 550-timberjack skidder  
14                                   rated at 185 horsepower. The controls of the unit are  
15                                   located inside the cab adjacent to the operator.  
16                                   The site is a typical sand outwash with light slash,  
17                                   gently rolling terrain, maximum slope 10 degrees.

18                                   The purpose of filming this particular  
19                                   site was to demonstrate disking action, turning and  
20                                   coverage capabilities. There are any number of  
21                                   scarifiers that could adequately treat this site.  
22                                   Average production on the project, 1.4 hectares per  
23                                   hour. The area was aerially seeded at 50,000 seeds per  
24                                   hectare February, 1986.

25                                   The TTS Delta scarifying a typical till

1 site. Slopes encountered on the project exceeded 30  
2 per cent. Topography on the site limited filming  
3 opportunities. On this project, vertical scarification  
4 will not increase soil erosion. Average production, 1  
5 hectare per hour. Plantable spots obtained, 1,800 per  
6 hectare.

7 As a comparison, we believe a typical  
8 drag unit would provide 12- to 1,300 plantable spots.  
9 The site was planted to white and black spruce in 1986.  
10 We anticipate chemical tending will be required in  
11 1988.

12 TTS Delta Power. A typical clay site in  
13 the Wabigoon drainage basin, gently rolling terrain  
14 with light to medium slash. Plantable spots, 2,500 per  
15 hectare. The area will be planted in 1987. Average  
16 production 1.4 hectares per hour. Chemical tending  
17 will likely be required to control ground vegetation.

18 In 1986 two Delta Trenchers scarified  
19 approximately 1,700 hectares in the northwest region  
20 during approximately a four-month period. The purpose  
21 of scarification was to prepare the site for container  
22 stock planting in 1986. Plantable spots obtained,  
23 2,000 per hectare. Average production, 1.3 hectares  
24 per hour.

25 Now, in our opinion, sites that are



1       scarified for planting using the Bracke Cultivator  
2       should be relatively slash free. Heavy slash will  
3       reduce the plantable spots and restrict planter  
4       mobility. By releasing the cable on the winch the unit  
5       can be disengaged. To re-engage, reactivate the winch.

6               The Bracke Badger. The Bracke Badger is  
7       very similar to the Bracke Cultivator except that it  
8       has three machine frames instead of two. In  
9       northwestern Ontario, we use a Bracke Badger on sites  
10      with numerous stones and boulders for seeding a final  
11      treatment.

12              Production on sites similar to this  
13      project range from 1.1 to 1.3 hectares per hour. This  
14      site was aerially seeded to jack pine at 50,000 seeds  
15      per hectare.

16              The Martini Plow. Scarification with the  
17      Martini Plow was carried out in Red Lake District in  
18      the northwest region in the late 70s to mid-80s. The  
19      purpose of scarifying with this plow was to reduce  
20      grass and herbaceous competition and to prepare a  
21      microsite for planting.

22              Overexposure was difficult to control.  
23      New models had more adjustment capability. Trees were  
24      planted in the trench adjacent to the windbreak.  
25      Average production on this site using a V-8 cable dozer

1 was .48 hectares per hour. Registration of the  
2 herbicide roundup has reduced the need for such severe  
3 scarification.

4 Ground Sprayer. The chemical ground  
5 sprayer. This unit was initially designed by Bob  
6 Dennis and subsequently modified by Ed Hiskret. For  
7 the sprayer to operate at maximum potential a skidder  
8 of 120 to 130 gross horsepower is required. The unit  
9 is equipped with a cluster nozzle and an adjustable  
10 spraying boom.

11 Using the cluster nozzle, we were able to  
12 treat up to 2 hectares per hour. In a matter of  
13 minutes the cluster nozzle can be disconnected and the  
14 boom in full operation. The motor and pump are located  
15 immediately in front of the 400-gallon aluminum tank.  
16 In northwestern Ontario we use the ground sprayer  
17 primarily on sites adjacent to private land or water.

18 Skidder Drags. Skidder Drags. A typical  
19 site treated by this unit, shallow sandy soils over  
20 bedrock, light slash, slopes range from gentle to plus  
21 30 degrees. The unit consists of four shark finned  
22 barrels, the first two barrels 24 by 32, the second 16  
23 by 24. All are cement loaded. Two stabilizers follow  
24 the unit. Unicast magnesium swivels are located  
25 between each barrel and chain which allow units to

1 rotate independently.

2 The 24 by 32 barrels are designed to draw  
3 over on obstacles more quickly than conventional  
4 barrels and thereby increasing the percentage of  
5 mineral soil exposure. The average production 8.9  
6 hectares per hour. The project was aeriually seeded in  
7 February, 1986. Dryden District treats approximately  
8 12- to 1,400 hectares using this scarifier annually.

9 Regeneration efforts have been highly  
10 successful in 1986 and '87 on sites similar to this  
11 thinning operations were required to reduce stocking in  
12 approximately 2,500 hectares.

13 Tractor Drags Tractor drags. The  
14 typical deep, well-drained sand site in northwestern  
15 Ontario. The prime mover in this project is a  
16 caterpillar D-8-L. The drag unit consists of nine  
17 shark finned barrels with three trailing pipe  
18 stabilizers. This unit has 3-24 by 48 inch barrels and  
19 6-16 by 48 inch barrels. All are cement loaded.

20 Assembly of the unit is similar to that  
21 of a skidder drag. On sites such as this, production  
22 rates of 1.3 hectares per hour are common. The project  
23 was aeriually seeded with jack pine at the rate of  
24 50,000 seeds per hectare.

25 Tractor Angle Blading Tractor Angle

1       Blading. This project was carried out in an area that  
2       was harvested in the early 1970s with no subsequent  
3       silvicultural treatment. The purpose of the blading  
4       was to prepare a suitable site for planting.

5               On this project the furrows are double  
6       width to maximize planting potential. Using this  
7       pattern of scarification, 1,700 to 1,800 plantable  
8       spots per hectare will be created. Production on this  
9       site was .6 hectares per hour. The scarifier is a  
10      Kumazu D-185-A.

11              When blading on clay soils in  
12      northwestern Ontario, it is important to leave a thin  
13      duff layer over the clay. Overexposure will lead to  
14      excessive drying and reduce growth potential.

15              TTS-35 Trencher. Gas powered seeder.  
16      This unit was purchased by the Provincial Equipment  
17      Development Committee. The seeder is mounted on a 740  
18      John Deere skidder which is pulling a TTS-35 trencher.  
19      The unit was tested briefly in Dryden District in 1987.

20              The controls are located within the  
21      skidder cab adjacent to the operator. The seeding rate  
22      can be easily adjusted for this project. The seeder  
23      was calibrated to drop a seed every 7 inches of travel.  
24      Seeding hoses at the rear of the trencher can be  
25      adjusted to ensure the seed is falling within the



1       scarified trench.

2                   An initial report has been compiled  
3       outlining our observations. Further testing will occur  
4       in 1988 and a more comprehensive report will be  
5       prepared at that time.

6                   DiNardo Trencher   The DiNardo Hydraulic  
7       Disk Trencher. The unit has two hydraulically powered  
8       tooth disks. The control is located within the cab  
9       adjacent to the operator.

10                  The hydraulic control valve is mounted in  
11       a secure location immediately behind the cab. The  
12       teeth are readily detachable and are designed for wear  
13       and abrasive resistance. The width between the furrows  
14       can be readily adjusted by the movement of the arms.

15                  The disks rotate in the direction of  
16       travel and can be adjusted from 15 to 30 rpm. This  
17       unit requires a skidder with a minimum amount of 180  
18       gross horsepower.

19                  Production raised over the past four  
20       years vary from .5 hectare per hour on extremely  
21       difficult sites to 1.8 hectares per hour on more  
22       favourable terrain.

23                  MR. FREIDIN: Q. Mr. Kennedy, one  
24       question arising out of that video that I would like to  
25       ask. It showed the disk trencher on a number of

1 different sites and on those different sites a  
2 different number of plantable spots were being  
3 achieved. What influences the number of plantable  
4 spots that are obtained?

5 MR. KENNEDY: A. Excuse me. Did you ask  
6 what influence?

7 Q. What influences the number of  
8 plantable spots that are obtained?

9 A. First off, the distance between the  
10 rose or furrows would have an effect on it as well as  
11 the contact which the -- that it comes in contact, the  
12 implement with the ground and the mixing of the organic  
13 and mineral and its ability to provide suitable  
14 planting spots, depending on the criteria of the actual  
15 silvics and the species that you have in mind for a  
16 particular planting site which would be looking at the  
17 attributes of this site for supplying the basic tree  
18 needs that I outlined in the beginning of adequate  
19 rooting medium, adequate conditions to ensure that  
20 there is temperature and moisture, et cetera.

21 Q. Okay. Would the site conditions have  
22 anything to do with your ability to achieve the number  
23 of spots that you wanted?

24 A. Yes, it would have a direct bearing  
25 on it, depending on the site conditions that you

1 encounter which would affect the production of the  
2 equipment.

3 THE CHAIRMAN: Mr. Kennedy, do you have a  
4 precise amount of plantable spots in mind before you go  
5 in in terms of bringing that site up to an acceptable  
6 stocking, or do you choose a scarification method and  
7 then just plant to the number of spots available after  
8 you go through that process?

9 MR. KENNEDY: It would be a desired  
10 level. It would be stated in the silvicultural  
11 groundrules in the TMP, the timber management planning,  
12 for each one of the site types. So there would be a  
13 desired amount of plantable spots in mind when you are  
14 looking at the site and then you would try and match  
15 the equipment and techniques which are available to you  
16 to allow you to reach that amount

17 Mr. Freidin, I would also like to make  
18 one clarification on the video so there is not an  
19 incorrect impression in my answer as to with regards to  
20 the use of the ground sprayer.

21 The indication was, or the transcript  
22 describes it as, we use it predominantly adjacent to  
23 private land and water courses. Perhaps the narrator  
24 should have gone on to indicate that we are using it in  
25 those cases in lieu of aerial application. Certainly

1 we are not applying herbicides right up to the edge of  
2 the water course.

3 MR. FREIDIN: Q. Again, that is a matter  
4 which will be dealt with in Panel No. 12.

5 MR. KENNEDY: A. That's correct.

6 MRS. KOVEN: What was the fellow doing  
7 who was marking the trees behind the nozzle sprayer?

8 MR. KENNEDY: He was marking the travel  
9 path and the area that had been sprayed for the  
10 equipment operator and lining up the trees adjacent to  
11 it for the subsequent pass.

12 MRS. KOVEN: And is the Provincial  
13 Equipment Development Committee still in operation?

14 MR. KENNEDY: Yes, it is. They are a  
15 committee that is comprised of representatives from the  
16 different regions and I believe that there is some FMA  
17 holders also who have a seat on the Provincial Equipment  
18 Development Committee and they test the variety of  
19 equipment that is available -- becomes available on the  
20 market. They participate in the design and final  
21 production to make equipment suitable for conditions in  
22 Ontario.

23 THE CHAIRMAN: Mr. Kennedy, when you have  
24 identified in advance any particular wildlife habitat  
25 within the area that you are going to treat, are any



1 special considerations made with respect to spraying?

2 MR. KENNEDY: Yes, if there is something  
3 that has been set aside, as I would say, critical  
4 habitat or habitat providing a special need, that would  
5 be taken into account during the timber management  
6 planning process.

7 That value would be identified early in  
8 the exercise and would result in an area of concern  
9 prescription which would include consideration of the  
10 use of chemicals both in site preparation and, also, in  
11 subsequent tending program prescriptions would be laid  
12 out if they were of a concern to that value.

13 MR. FREIDIN: Q. Just a couple of  
14 concluding questions, Mr. Kennedy. In your material  
15 starting on page 364 and going right through to 421,  
16 you have a number of technical documents in relation to  
17 various pieces of equipment.

18 Why did you include that material in the  
19 witness statement?

20 MR. KENNEDY: A. I wanted to provide the  
21 Board and the parties with an indication of the  
22 examples of the kinds of information that is available  
23 of a technical nature that provides direction for field  
24 staff in looking at what equipment may be best to treat  
25 the sites that they have.

1                   So I selected a number of excerpts from  
2                   the silvicultural equipment reference catalogues that  
3                   are available that are referenced in their entirety as  
4                   Reference 1 and 2 in the paper and are available in the  
5                   reading room for viewing.

6                   So I thought it was helpful to provide a  
7                   number of leaflets that represent each one of the  
8                   equipment types and I believe Mr. Waito went into some  
9                   description of the Bracke yesterday and I won't go into  
10                  any further details given the fact that the machine was  
11                  covered both in the slides and in the video.

12                  THE CHAIRMAN: One more question, Mr.  
13                  Kennedy. I wasn't sure from your previous testimony  
14                  whether or not the choice as to whether spraying would  
15                  be allowed in any form is a choice of the forester or  
16                  is a choice that has to be mandated by the actual  
17                  silvicultural prescriptions.

18                  In other words, as you go through the  
19                  planning process, would you have to specify in advance  
20                  on the plan on the silvicultural prescriptions that  
21                  spraying could be allowed, or is that a choice left up  
22                  to the forester in the field?

23                  MR. KENNEDY: I say it's a combination.  
24                  In the silvicultural groundrules, the choice of using  
25                  chemical site preparation would be laid out in the

1 groundrules and it would be available for review by the  
2 planning team in its development, but the initial  
3 proposal would come from the forester as indicating  
4 that it's an acceptable or desirable method of  
5 achieving site prep on that unit and it would be  
6 reviewed by the planning team to ensure that the use of  
7 that would not infringe on the other values that are  
8 being considered on the area.

9 THE CHAIRMAN: So the public at large  
10 wouldn't be surprised, in the sense that they wouldn't  
11 be surprised to find that an area had been sprayed,  
12 that they wouldn't have had at least prior notice, in  
13 that that would be a consideration in the silvicultural  
14 groundrules. Is that what you are saying?

15 MR. KENNEDY: That's correct. There are  
16 in fact a number of opportunities for the public to be  
17 involved, informed or notified of the use of the  
18 chemical site preparation as well as chemical release  
19 and we will be dealing with those in some detail in  
20 Panel 15.

21 THE CHAIRMAN: And is any particular --  
22 or are any particular steps taken prior to spraying  
23 whether -- by aerial spraying or ground spraying in  
24 advance around the area that would notify people coming  
25 into the area that such activities were going to be

1 carried on; in other words, to stay away while it's  
2 happening, hunters, fishermen, whatever?

3 MR. KENNEDY: Yes. We have two ways of  
4 informing people. Perhaps I will just briefly outline  
5 them now and we will deal with the details in  
6 subsequent panels.

7 But the two forms are at the time -- just  
8 prior to the application of the herbicides or  
9 insecticides, in fact there is direct contact with  
10 individuals that are expected to be affected --  
11 potentially affected by that operation.

12 In addition to that, the areas are posted  
13 with signs which indicate the product being used and  
14 the intended date of application and a contact number  
15 so that individuals that may come into an area  
16 unexpectedly, say a day fisherman, would be advised of  
17 that while they are travelling on an access road.

18 In the case of a cottager -- cottage or  
19 tourist operator that had a remote outpost camp, an  
20 individual of that nature would have received direct  
21 notification prior to the application occurring. That  
22 notification would occur 7 days, I believe it is, prior  
23 to the operation starting.

24 THE CHAIRMAN: Thank you.

25 MR. KENNEDY: As well I should point out



1       that there are a number of notices that occur,  
2       depending on the type of operation being conducted,  
3       particularly with the aerial, also the general notice  
4       that occurs in the media.

5                   MR. FREIDIN:  Q.  Now, could I just ask  
6       perhaps the same question as the Chairman did about the  
7       application of herbicides and just talk about  
8       prescribed burn.  Would there be an indication in the  
9       plan that prescribed burn had been approved as an  
10      option?

11                   MR. KENNEDY:  A.  Yes.  In a similar  
12      fashion, prescribed burning would -- I would expect to  
13      see prescribed burning listed as one of the site  
14      preparation options in the silvicultural groundrules.  
15      And, again, in that fashion it would be open for both  
16      public review and review by the planning team and it  
17      would occur subsequently in the annual work schedules  
18      where those details are recorded for the upcoming  
19      season.

20                   MR. MARTEL:  Might I ask a question then.  
21      If there is an annual work schedule prescribed burn,  
22      how does it show up at an open house, five years before  
23      or ten years before at an open house before it's going  
24      to occur?

25                   MR. KENNEDY:  It shows up in two ways.

1 It is included in the silvicultural groundrules, as  
2 I've outlined, as a possible technique, as well as in  
3 some situations it's shown as a potential treatment  
4 which is included under the areas that are being  
5 considered eligible for renewal during the 20-year term  
6 and, more specifically, for the areas that are selected  
7 for operations -- renewal operations for the five-year  
8 term.

9 MR. MARTEL: Then in fact they could not  
10 occur, you might -- something new might come along in  
11 the interim which would alter that?

12 MR. KENNEDY: That's correct.

13 MR. MARTEL: Or in fact what was  
14 tentative becomes a reality. And I guess what I am  
15 trying to get a handle on is: How does the public have  
16 any input? Let's say someone wanted to oppose an  
17 aerial spray somewhere down the road or a prescribed  
18 burn, how do they get an opportunity to at least raise  
19 their objections?

20 MR. KENNEDY: One of the primary ways to  
21 identify your concern is the four opportunities that we  
22 provide for public consultation during the timber  
23 management planning process which is starting with  
24 coming out to participate in the development plan,  
25 identify concerns that they may have with one of the

1 treatments and to indicate their concern and to have  
2 that recorded in more specific detail for the areas  
3 that are left for the five-year operations.

4 And that can result in prescription  
5 setting for areas of concern to modify or perhaps  
6 exclude a particular treatment.

7 THE CHAIRMAN: But does it really do a  
8 lot of good to the public if they raise the concern in  
9 terms of a potentiality which may or may not occur  
10 years down the road?

11 So they've raised the concern. Are not  
12 they met with the reply: We haven't decided yet what  
13 actual treatment is going to occur, we note your  
14 concern, thank you very much, and then three years down  
15 the road the next thing the person who complained finds  
16 out is that you have in fact decided to go with the  
17 prescribed burn or a chemical treatment.

18 I mean, how effective is that process  
19 that allows notification at the front end when the  
20 actual decisions haven't been made and won't be made  
21 for several years in future as to the exact treatment?

22 MR. KENNEDY: Mr. Chairman, I can see on  
23 the surface it may appear weak to an observer, but I  
24 can assure you that the conditions that are on the site  
25 and the uncertainty in those conditions and the

1       uncertainty of weather factors makes it unable for us  
2       to predict with any degree of accuracy of saying: Yes,  
3       that site will be prepared in that fashion.

4                       But what I was indicating was that there  
5       are opportunities for people to register that concern  
6       and, again, at the annual work schedule we do  
7       consult -- we do provide the direct notification to  
8       people, advise them of that occurring and that their  
9       concerns can be taken into account during the  
10      preparation of the primary described burn plan which  
11      Mr. Elliott will be describing to you and some  
12      considerations of that treatment.

13                     THE CHAIRMAN: Well, just as a follow-up,  
14      when you are developing the annual work schedule for  
15      the following year, is there a public consultation  
16      opportunity built in there where they can specifically  
17      object to what is going to occur in the following year?

18                     MR. KENNEDY: No, there is not a public  
19      consultation opportunity in that form. There is a  
20      public notification of the approved treatments that are  
21      scheduled to take place during that operating year.

22                     THE CHAIRMAN: And so you are saying that  
23      once the public gets this notification, if they wish to  
24      take further measures they then respond at that time;  
25      is that what you are saying?



1                   MR. KENNEDY: That's correct. And also  
2                   in the development of the plan, there is a  
3                   consideration of the prescribed burn plan, there is a  
4                   consideration of other values and oftentimes it  
5                   includes a consultation during the development of that  
6                   operation plan.

7                   And I am trying to distinguish, Mr.  
8                   Chairman, in that there is not a formal public  
9                   consultation opportunity other than the notification  
10                  commonly at the annual work schedule level.

11                  THE CHAIRMAN: Thank you.

12                  MR. HYNARD: Mr. Chairman, it really  
13                  works identical to provisions for harvest in the timber  
14                  management plan. The fact that a stand is allocated  
15                  for harvest doesn't necessarily mean that the harvest  
16                  will occur.

17                  If a concerned member of the public  
18                  wanted to see exactly what the nature of the harvest  
19                  would be, he would look at the silvicultural  
20                  groundrules and he would look at the options that are  
21                  available to the forester in those groundrules.

22                  Similarly, he would do exactly the same  
23                  thing for site preparation. He wouldn't be sure that  
24                  site presentation was going to occur because of these  
25                  other factors, but he would know that for that

1 particular site and that particular area one of the  
2 acceptable options is herbicide spraying or prescribed  
3 burning.

4 If he wished to raise an objection, he  
5 would do so at that time in the normal timber  
6 management planning process just like he would for  
7 harvest, and then the planning team would have to deal  
8 with that.

9 They would record that, it would be part  
10 of the supplementary documentation. He would be -- the  
11 objector would be advised as to how his input was  
12 considered and the outcome of the decision, and if he  
13 still objected over the site preparation technique that  
14 was available to the forester according to the  
15 groundrules, then he has bump-up finally as a last  
16 resort. It would be exactly the same as harvest.

17 MR. FREIDIN: Q. In that situation, if  
18 somebody didn't want one of those activities, they made  
19 their case known and they were successful in changing  
20 the initial decision about that, that can be reflected  
21 in that option being removed as an option in the  
22 silvicultural groundrules?

23 MR. HYNARD: A. That could be too, yes.

24 THE CHAIRMAN: Mr. Hynard, just from your  
25 own experience as a unit forester, is it not likely

1       that the person objecting to particular choices that  
2       would be open to the forester would be met with the  
3       kind of statement that he can't really say what kind of  
4       regenerative treatment will be recommended, it depends  
5       on all kinds of factors such as weather and site  
6       conditions and whatnot that you've already gone  
7       through, but would not the Ministry be reluctant to  
8       rule out one of the options in advance because, again,  
9       you want to keep your options open for the best, most  
10      economic, most effective treatment at the time that you  
11      are going to put that treatment into actual practice?

12               MR. HYNARD: Yes. Well, of course,  
13      that's true. We will regard the objection very  
14      seriously, we will take a look at the objector and his  
15      interest and his concern and the consequences of  
16      proceeding.

17               All of those factors would be considered  
18      by the planning team. If the planning team decided  
19      that the objection was not sufficient in their view to  
20      exclude that type of treatment, prescribed burning or  
21      whatever it is, then the objector would be advised as  
22      to the outcome of the decision.

23               Now, I don't think the answer to him  
24      that: Well, we really don't know what will happen so  
25      don't worry about it, is a sufficient reply. The

1 nature of the reply would be: We have looked at your  
2 objection, we have considered it on this basis, we have  
3 made a decision and this is the reason for our decision  
4 and if you wish further recourse here is what you must  
5 do. That would be the nature of the reply to the  
6 objector, not: Well, don't worry about it, we are  
7 really not sure at this stage.

8 MR. MARTEL: But that's at the time that  
9 the procedure is going to occur, some weeks or months  
10 before. Is it not possible, if a person is objecting,  
11 to be advised at that point that the procedure was  
12 going to be proceeded with?

13 MR. HYNARD: What I have been talking  
14 about is the timber management planning process up to  
15 five years before the operation. Now, you are talking  
16 about a later objection?

17 MR. MARTEL: That's right.

18 MR. HYNARD: Say at the annual work  
19 schedule somebody comes forward at that time and  
20 objects?

21 MR. FREIDIN: I'm wondering, like if  
22 somebody comes up with an objection for notifying  
23 people that the burn -- or notifying the industry that  
24 that was actually going to take place?

25 MR. MARTEL: That's right, even five



1 years down the road. You may have submitted a letter  
2 to someone, you didn't win, we really can't decide, or  
3 here is your course of action.

4 But four years ago, before you've decided  
5 to do something, should the person who has objected be  
6 notified that you are proceeding at that time; they're  
7 in a position to know because they're going to get a  
8 look at the annual work plan.

9 MR. HYNARD: That's right. You are  
10 absolutely right. If we are aware there was an  
11 interested person who wishes to be advised before the  
12 operations commence, perhaps for the simple reason he  
13 doesn't want to be anywhere around there, exposure to  
14 herbicide was a personal concern of his or hers, then  
15 we would advise -- well, Frank laid out the public  
16 notices that occur.

17 If we are aware that there was a special  
18 objector who wanted a special notice, we do -- we  
19 certainly would contact him and say: Here is the date.  
20 And, in my experience as an unit forester, we do that.

21 MR. FREIDIN: Mr. Martel, there is in the  
22 prescribed burn manual, which Mr. Elliott will be  
23 speaking to, specific notification of communication,  
24 providing people in advance that things that were  
25 approved in the TMP are now going to take place and

1       there are provisions for that.

2                       In the case of -- and, Mr. Kennedy,  
3       perhaps you can advise whether there will be any  
4       evidence regarding notices to the public in relation to  
5       the aerial application of herbicide or insecticide in  
6       later panels?

7                       MR. KENNEDY: Yes, Panel 15 in particular  
8       will talk about the public notices that are given and  
9       we make reference to them in Panels 12 and 13 as well.

10                      THE CHAIRMAN: I think, as you can  
11       possibly gather, the concern of the Board in this area  
12       is not so much for perhaps the particular choice of  
13       harvest methods, but with respect to pesticide,  
14       herbicide and prescribed burns, where there are people  
15       undoubtedly that oppose those kind of activities almost  
16       generically and would want notice of that or at least  
17       have the opportunity to object formally.

18                      MR. FREIDIN: Mr. Chairman, I can advise  
19       you that that view by certain people has been taken  
20       into account by my client and I believe that it is  
21       being adequately addressed in the proposed procedures  
22       and processes which will you will hear about in later  
23       panels. That concern that you've indicated does not  
24       come as a surprise to the proponent.

25                      THE CHAIRMAN: Okay. Well, perhaps it is

1 premature in this panel then.

2 MR. KENNEDY: Mr. Chairman, if I may by  
3 way of summary, during the planning process there is  
4 formal public consultation opportunity but, as well,  
5 with each annual work schedule there is notification to  
6 those individuals who are directly affected, I believe  
7 along the lines that Mr. Martel was suggesting and,  
8 that is, whether they are objecting or not, they  
9 receive direct notice as well as the notification that  
10 occurs advising that the annual work schedule is  
11 available for inspection and remains available for  
12 inspection throughout the entire course of the year.

13 We will be providing further evidence of  
14 the detail of that in Panel 15.

15 MR. FREIDIN: Okay.

16 Q. In Panel 10, both Mr. Oldford and Mr.  
17 Greenwood referred to development in both equipment and  
18 use of equipment which they characterized as advances.

19 Could you advise in a brief way whether  
20 the area of site preparation has a comparable history?

21 MR. KENNEDY: A. I think it does. In  
22 the opening remarks I made reference to the rock that  
23 Ken Armson showed in Panel 2 used as site preparation  
24 in the 60s. I think through this demonstration today  
25 of the slides and the video showing the rutting

1 equipment that we have for foresters in Ontario today  
2 does show we may have made significant advance in site  
3 preparation in particular.

4 And the personal note I would like to add  
5 is that the advantages of this trencher and variety of  
6 equipment that have evolved from it, I think in  
7 particular they are able to assist us in establishing  
8 both seeds and seedlings in a very effective manner.

9 Q. And are there any comments that you  
10 would like to make before we bring this examination to  
11 a close, Mr. Kennedy?

12 A. Just a general comment that -- coming  
13 back to my opening remarks about site preparation being  
14 the potential disturbance of a site. This is necessary  
15 to provide the suitable physical environment for the  
16 establishment of growth of trees and I want to leave  
17 the Board with the understanding that it does occur in  
18 conjunction with due consideration for the environment.

19 MR. FREIDIN: Thanks, Mr. Kennedy.

20 THE CHAIRMAN: Mr. Freidin, whereabouts  
21 are you in this examination of this panel?

22 MR. FREIDIN: Well, we have now heard  
23 from three witnesses. I think we have got...

24 THE CHAIRMAN: I guess what I am asking  
25 is: How much longer in terms of days do you anticipate



1 the rest of the panel will take?

2 MR. FREIDIN: Two days plus -- two full  
3 days plus or minus a couple of hours.

4 THE CHAIRMAN: I suppose your goal is to  
5 try and finish next week, or is it going to be the week  
6 after?

7 MR. FREIDIN: Our intention is to finish  
8 next week.

9 MS. CRONK: In-chief, Mr. Chairman.

10 THE CHAIRMAN: Well, we assume all the  
11 other parties haven't waived their rights for  
12 cross-examination.

13 MR. FREIDIN: Particularly since you are  
14 here, Ms. Cronk.

15 THE CHAIRMAN: Okay. All right.  
16 Perhaps, Ms. Blastorah, we will take another break at  
17 this time and then maybe come back for an hour.

18 MS. BLASTORAH: Mr. Chairman, I have some  
19 concern, that Mr. Elliott is going to be giving  
20 evidence next on prescribed burning and it will run, I  
21 expect, two to three hours.

22 Is that about right, Mr. Elliott?

23 MR. ELLIOTT: (nodding affirmatively)

24 MS. BLASTORAH: It is fairly important it  
25 be given in one presentation. We are willing to start

1 now and work through lunch and attempt to do that  
2 today. It is up to the Board how you wish to proceed  
3 in that regard. It can be broken, if necessary, but we  
4 are just pointing out that concern.

5 THE CHAIRMAN: The only difficulty,  
6 perhaps a personal one, Ms. Blastorah, is some of us  
7 may not have - in anticipation that we will be breaking  
8 earlier than that, have not done certain things that  
9 are necessary to reach a flight in time.

10 For instance, I have to go all the way  
11 out to my residence to get packed and everything else  
12 and get back in anticipation that we would be breaking  
13 about one or so.

14 Is there another witness you could  
15 proceed with at all, or is it going to be...

16 MS. BLASTORAH: That gives rise to the  
17 same situation.

18 We can perhaps start Mr. Elliott and go  
19 through some of the preliminary matters, such as filing  
20 some exhibits and having him state how he is going to  
21 approach his evidence without actually getting into the  
22 slide presentation.

23 THE CHAIRMAN: Why don't we do this: Why  
24 don't we take a break now and come back and do that and  
25 cover as much of--

1 MS. BLASTORAH: The introductory part.

2 THE CHAIRMAN: --the introductory remarks  
3 that you can and do all the rest of his evidence at one  
4 time.

5 MS. BLASTORAH: Okay. Thank you, Mr.  
6 Chairman.

7 ---Recess taken at 11:30 a.m.

8 ---On resuming at 11:50 a.m.

9 THE CHAIRMAN: Thank you. Be seated,  
10 please.

11 MS. BLASTORAH: Mr. Chairman, one  
12 preliminary announcement of a social nature before we  
13 begin. I am advised that there will be a first  
14 anniversary party for all those involved in the  
15 hearing, a cocktail reception which will take place in  
16 Salon E here at the hotel, it is across from the  
17 catering office, and that is scheduled for Tuesday, May  
18 9th, from 7:00 to 10:00 p.m. Everyone invited.

19 We may get a lot of out-of-town attendees  
20 because it is going out in the record.

21 THE CHAIRMAN: Well, that sounds very  
22 pleasant. Thank you, Ms. Blastorah.

23 I also understand that next week, because  
24 of the motions that are before the Board, it is going  
25 to be a sort of home coming for some of the early

1 participants in this hearing. Mr. Campbell is  
2 returning, Mr. Castrilli is returning and a few others  
3 I think will be coming back.

4 MS. BLASTORAH: It is fortuitous timing  
5 then.

6 Mr. Chairman, just on that point, do you  
7 have any notice of other parties who aren't in normal  
8 attendance who will be attending to address the motion?

9 THE CHAIRMAN: I don't think we have  
10 notice of any parties who have formally indicated that  
11 they are going to address the motion.

12 We have had some inquiries from other  
13 agencies, I believe both at the federal and provincial  
14 levels, as to exactly what issues were involved in this  
15 motion. I think it is not hard to--

16 MS. BLASTORAH: Speculate.

17 THE CHAIRMAN: --speculate who might be  
18 interested in those issues in terms of other regulatory  
19 bodies that deal with them in the normal course.

20 Whether or not any participation from  
21 those parties will be made in a formal way, we don't  
22 know at this point. Certainly no documentation has  
23 been filed that we are aware of.

24 MS. BLASTORAH: Thank you, that's  
25 helpful.



1                   In light of our discussions prior to the  
2                   break, we are going to make an attempt to at least make  
3                   a start on Mr. Elliott's evidence and perhaps deal with  
4                   some of the preliminary things that won't get us too  
5                   far into the presentation.

6                   I would like to begin by filing a copy of  
7                   his photographs. This is a hard copy of the  
8                   photographs that are contained in the witness  
9                   statement.

10                  THE CHAIRMAN: Okay. Exhibit 557.

11                  ---EXHIBIT NO. 557: Hard copy of photographs contained  
12                                   in witness statement related to  
                                  Mr. Elliott's presentation.

13                  MS. BLASTORAH: I would point out that  
14                  Mr. Elliott is going to be doing a slide presentation  
15                  as part of his evidence today and next week, and not  
16                  all of the photographs or the slides he will be using  
17                  are contained in the witness statement.

18                  So we will be providing hard copies of  
19                  those photographs as well. They simply haven't arrived  
20                  yet, and we will have photocopies of the photographs to  
21                  provide to the parties.

22                  THE CHAIRMAN: Okay. And they will all  
23                  be under this Exhibit 557?

24                  MS. BLASTORAH: Perhaps we could mark  
25                  those with a separate exhibit number. Would you like

1 to reserve one for that now?

2 THE CHAIRMAN: All right. Exhibit 558.

3 ---EXHIBIT NO. 558: Photocopies of photographs of  
4 Mr. Elliott's presentation.

5 MS. BLASTORAH: Q. Mr. Elliott, would  
6 you like to begin my advising the Board what areas you  
7 will be covering in your evidence?

8 MR. ELLIOTT: A. Mr. Chairman, my  
9 presentation will build on the evidence that is  
10 contained in Exhibit 532B. I will highlight and expand  
11 on the main messages that are contained in that written  
12 evidence.

13 The messages I want to leave with the  
14 Board at the end of my presentation are that prescribed  
15 burning is a valuable site preparation technique in  
16 Ontario, and prescribed burning activities are  
17 controlled by policy, procedure and by a comprehensive  
18 prescribed burn planning manual; that all prescribed  
19 burns in Ontario are conducted under approved operating  
20 plans; the results of each burn operation are measured  
21 and documented; that the effects of prescribed burning  
22 as a timber management treatment are positive; at the  
23 same time, there are some inherent risks involved as  
24 well, and these risks can be minimized.

25 And the final message that I want to

1 leave is that the prescribed burning program uses the  
2 results of research and development to improve our  
3 capability in this particular area.

4 We are dealing with prescribed burning as  
5 a separate subject because it involves much planning  
6 and preparation prior to the actual in-the-field  
7 operation. This preparation is necessary because of  
8 the fact that we are dealing with fire and care has to  
9 be taken to ensure that a safe and effective operation  
10 using qualified staff who are trained and experienced  
11 in forest fire operations, including prescribed burns.

12 My evidence will be presented in four  
13 sections. I am going to start with the nature and  
14 scope of the prescribed burning program in Ontario for  
15 timber management purposes. I then am going to move on  
16 to a discussion of prescribed burn operations in  
17 Ontario including the use of weather information in  
18 prescription setting.

19 And I would like to differentiate.  
20 Prescription setting in this case refers to the  
21 prescriptions that we set for the fire, not for the  
22 timber management plan.

23 Q. And that would be for each individual  
24 fire?

25 A. For each individual fire. We will

1 move into a discussion on the general short and longer  
2 term effects of prescribed fire without discussing  
3 aquatic effects, and a short description to finish off  
4 of a major research project that's currently being  
5 conducted in Ontario.

6 I would propose, Mr. Chairman, to go as  
7 far as I can with the presentation and we can finish it  
8 up next week, if that's necessary.

9 Q. Mr. Elliott, perhaps just before we  
10 dim the lights, I would just like to ask you one sort  
11 of introductory question. Are prescribed burning  
12 operations currently carried out by anyone other than  
13 the Ministry?

14 A. No. The only people that carry out  
15 prescribed burning operations in Ontario are qualified  
16 and trained Ministry staff.

17 Q. Thank you.

18 THE CHAIRMAN: And that is off Crown  
19 lands as well?

20 MR. ELLIOTT: Off Crown lands as well. I  
21 am not aware of any private individual that's involved  
22 in the prescribed burning business.

23 MS. BLASTORAH: Q. And that would also  
24 include on FMA lands?

25 MR. ELLIOTT: A. It includes FMA lands,



1       that's true.

2                       Q. Thank you.

3                       MS. BLASTORAH: Perhaps if someone can  
4       dim the lights, I think Mr. Elliott has a slide  
5       presentation. Are you able to see from there, Mr.  
6       Elliott, or would you prefer to move closer to the  
7       screen?

8                       MR. ELLIOTT: I can see fine from here.

9                       MS. BLASTORAH: Okay.

10                      MR. ELLIOTT: If I can have somebody flip  
11       on the projector for me, please.

12                      On Tuesday Mr. Hynard was talking about  
13       natural disturbances that create good wild forest  
14       stands. This is an example of such a disturbance.  
15       This happens to be a picture from Red Lake Fire 7 that  
16       occurred in 1986.

17                      MS. BLASTORAH: Q. That's not a slide  
18       that's contained in the witness statement, I believe,  
19       Mr. Elliott?

20                      MR. ELLIOTT: A. This is the definition  
21       of prescribing burning that is found in the witness  
22       statement. I want to highlight some differences  
23       between wild fire and prescribed fires.

24                      The differences are that prescribed fires  
25       occur under a predetermined set of weather and field

1 conditions; whereas wild fires occur randomly.  
2 Prescribed burning is a planned site treatment. Forest  
3 cover may be different prior to a prescribed burn as  
4 opposed to a wild fire. By that I mean almost all  
5 cases some treatment has taken place in the forest  
6 prior to prescribed burning.

7 MS. BLASTORAH: Mr. Chairman, perhaps  
8 just before we go on, I should mark -- or indicate on  
9 the record each of the slides as A, B, C and so on of  
10 Exhibit 558 as we proceed. So the first photograph in  
11 the presentation would be 558A and this overhead or  
12 slide, which is text, will be 558B.

13 THE CHAIRMAN: Okay.

14 ---EXHIBIT NO. 558A: Photograph depicting Red Lake  
15 Fire 7, 1986.

16 ---EXHIBIT NO. 558B: Slide depicting fire behaviour  
17 characteristics.

18 MS. BLASTORAH: Q. Sorry, Mr. Elliott.

19 MR. ELLIOTT: A. Fire behaviour  
20 characteristics; that is, rate of spread and fire  
21 intensity. It can be controlled in the prescription  
22 setting in a prescribed burn operation.

23 In a wild fire situation these fire  
24 behaviour characteristics are a product of the weather  
25 and field conditions at the time the wild fire ignites.

There are some similarities between

1 prescribed fires and wild fires and they are that, both  
2 prepare seedbed for a new forest crop, both consume  
3 forest fuel and revegetation occurs after both kinds of  
4 fires.

5 This is Figure 1 in our written evidence  
6 found on page 433. It shows a comparison of prescribed  
7 burning compared to the total area site prepared in the  
8 province. It is in the area of prescribed burning,  
9 area of total site preparation in the province between  
10 1966 and 1988.

11 The key point here, as Mr. Kennedy has  
12 already said, is that prescribed burning accounts for  
13 about 8 per cent of the total area. Since 1980 there  
14 has been a slight increase in the prescribed burn  
15 operation as a result of client interest, in this case,  
16 the timber management staff and the increase follows,  
17 in general, the increase in the overall site  
18 preparation efforts.

19 The most prescribed burns were conducted  
20 in 1987 when 59 burns treated about 13,500 hectares.  
21 The drop in the prescribe burning program in 1988 is a  
22 direct result of the wild fire season that was  
23 experienced that year.

24 The impact of the type of fire season in  
25 1988 is a result of the fact that the manpower and

1 equipment that are identified in the prescribed burn  
2 plans and are required on the prescribed burn  
3 operations are the same personnel and equipment that  
4 are required for wild fire suppression operations.  
5 Wild fire suppression in those kinds -- in any fire  
6 year is a priority operation.

7 The weather conditions that provide the  
8 kinds of prescriptions that are required for successful  
9 prescribed burning are the same as the weather  
10 conditions that are conducive to wild fire occurrence  
11 and wild fire spread.

12 Q. Mr. Elliott, would those two factors  
13 you just mentioned, the use of the same manpower and  
14 equipment in the prescribed burning program as are used  
15 to fight wild fires and the weather conditions, would  
16 those be factors that would affect the ability to  
17 indicate or to say for sure on which particular piece  
18 of ground or when a prescribed burn would definitely be  
19 carried out?

20 A. Would you repeat that again, I am not  
21 sure...

22 Q. I'm sorry that's kind of a long  
23 question. You've just indicated two factors; firstly,  
24 that the same manpower and equipment that are used to  
25 fight wild fires are also used to conduct prescribed



1 burns, I believe I am correct in that. And, secondly,  
2 that weather conditions have an effect on the ability  
3 to conduct the burn.

4 I was just wondering whether those would  
5 be factors that would affect your ability to predict  
6 five years in advance where a burn would be conducted  
7 or when a burn would be conducted?

8 A. No, those factors are not predictable  
9 five years in advance, they are much more important in  
10 the annual program and it boils down in some cases to  
11 almost a burn-by-burn situation.

12 This week it may be possible to conduct  
13 prescribed burns because there are not many wild fires  
14 and adequate manpower and equipment to carry them out;  
15 by next week the situation may have reversed and you  
16 are into a wild fire, the situation of prescribed  
17 burning programs is curtailed as a result.

18 Q. Thank you.

19 A. Mr. Kennedy described in his evidence  
20 how a forester makes a decision between site  
21 preparation treatments. The decision to use fire as a  
22 site prep treatment is made by the forester. This  
23 decision comes after a thought process that includes  
24 consultation between the forester and the fire staff  
25 about candidate areas for prescribed burning.

1                   This consultation includes discussions on  
2                   what the forester expects the fire to do on the site,  
3                   including the amount of slash and organic material to  
4                   be removed from the site. From a fire manager's point  
5                   of view considerations for the use of prescribed fire  
6                   are based on a number of criteria. The fuel amount - I  
7                   am talking about forest fuel amount - condition and  
8                   arrangement in the area to be burned.

9                   The question that runs through the fire  
10                  manager's mind is: Is there enough fuel in the area so  
11                  that it can be burned and so that the fire can be  
12                  controlled and still achieve the prescription.

13                  The fire manager makes an assessment of  
14                  the fuel in the area outside of the burn but  
15                  immediately adjacent to it. This helps determine the  
16                  risk of fire escape given the proposed fire  
17                  prescription.

18                  The fire manager is interested in what  
19                  control action is required to keep the fire inside the  
20                  planned area. He looks at the values, both timber and  
21                  non-timber, that need to be protected in the immediate  
22                  prescribed burn area and looks at the techniques that  
23                  he has at his disposal to provide the required  
24                  protection to those values.

25                  Q. And we will be hearing more about

1       that later, I believe?

2                   A. That's right. The fire manager is  
3       concerned about the chances of the desired prescription  
4       actually occurring during the operating year. This is  
5       based on assessment of historical weather data that  
6       helps the fire manager determine the probability that  
7       the weather conditions that are required for the  
8       particular proposed prescribed burn will in fact occur.

9                   The fire manager is interested in the  
10      requirement for mandatory equipment to conduct the  
11      burn. Of course, he is vitally interested in the cost  
12      of the job and he has to take smoke management  
13      considerations into his decision-making analysis.

14                  Some of these things or some of these  
15      considerations could be described as constraints to the  
16      use of prescribed burning. As I said before, the  
17      occurrence of weather conditions that will achieve the  
18      objectives set by the forester. If those weather  
19      conditions do not occur, then the prescribed burn that  
20      is proposed will not be done.

21                  The cost of doing the job. In some  
22      situations the cost -- cost/benefit analysis indicates  
23      that prescribed burning is not the treatment to use.  
24      Some of the factors that affect cost, size and shape of  
25      the area to be burned, the ignition methods to be

1       used - and we will see more of these kinds of things  
2       late other on - the values that need protecting, things  
3       like real property, buildings such as cottages,  
4       trappers' cabins and outpost camps, timber harvesting  
5       values such as cut wood and tree scheduled for harvest,  
6       areas of concern that are identified during the  
7       planning process are those kinds of values that require  
8       protection and may require some extra work so that  
9       their protection could be assured during the burning  
10      operation.

11                           Q.   This slide -- sorry, Mr. Elliott.

12      This slide will be Exhibit 558C.

13      ---EXHIBIT NO. 558C:   Slide depicting suppression  
14   requirements.

15                           MR. ELLIOTT:   The suppression  
16      requirements for a particular burn also are a large  
17      influence on cost.   In some cases natural boundaries  
18      will hold the fire and keep the suppression costs down;  
19      in other cases fire suppression crews and, in some  
20      cases, fire bombing aircraft will be required to keep  
21      the fire within the planned boundary.   Those will  
22      increase the cost and drive the costs up a little bit

23                           Just a matter of interest, the cost of  
24      prescribed burns range between \$57 and \$452 dollars per  
25      hectare for most of the burns.   The highest cost that I



1       could find was a cost of about \$568 a hectare on a very  
2       small burn.

3                   MS. BLASTORAH: Q. What causes the  
4       difference, Mr. Elliott? Would those be the sorts of  
5       factors you have been describing to us?

6                   A. Yes, that is -- the primary  
7       differences are the factors that I have been describing  
8       to you.

9                   Mr. Kennedy in his evidence was talking  
10      about -- a little bit how the prescribed burning  
11      program fit into the timber management planning process  
12      and how it was further continued in the annual work  
13      schedule.

14                  The annual work schedule, the actual  
15      prescribed burn sites are identified to the following  
16      one or two-year period. During the preparation of this  
17      annual work schedule the unit forester and local fire  
18      management personnel consult to identify a realistic  
19      number of prescribed burns that can be conducted during  
20      that planning year.

21                  The unit forester will make formal  
22      application to the District Prescribed Burn Committee.  
23      The makeup of this committee is described in the  
24      prescribed burn planning manual, but it consists of at  
25      least the district manager, the fire management

1 staff -- a fire management staff for that area, the  
2 unit forester in the case of burns for timber  
3 management purposes, and other representatives from the  
4 district staff who have an interest in the prescribed  
5 burn program in the district.

6 In most cases, all functions in the  
7 district would be represented on this prescribed burn  
8 committee. By that I mean fish and wildlife, lands,  
9 parks and finance and administration staff would be  
10 represented on this committee.

11 Q. And if other interests were raised in  
12 reference to a particular burn, would representatives  
13 of those interests either be on the committee or be  
14 contacted?

15 A. In all cases anybody who has an  
16 interest in a particular burn would, at a minimum, be  
17 contacted. This District Prescribed Burn Committee  
18 looks at all of the proposals that the unit foresters  
19 in the district put forward and it decides which ones  
20 will be conducted in any given year.

21 Once the District Prescribed Burn  
22 Committee has accepted the proposal for the coming  
23 year, they forward those proposals to the regional  
24 review group which is also described in the prescribed  
25 burning manual. This review group puts together a

1 prioritized list on prescribed burns for the region in  
2 the coming year.

3 The schedule for this process is laid out  
4 in the prescribed burn planning manual on pages 1 to 7  
5 of the chapter entitled: Sequence of Events. Only on  
6 approval of the applications do the fire management  
7 organization proceed with the preparation of the  
8 individual prescribed burn plans. These plans are  
9 reviewed and approved at the district level and again  
10 at the regional level prior to the operating season.

11 Q. Mr. Elliott, just on that point. If  
12 there were substantial changes to the situation on a  
13 particular geographic site once a plan had been  
14 prepared, would that be taken into account, or once an  
15 application had been made?

16 A. If there were any changes as a result  
17 of something on the site between the time the burn is  
18 approved and the plan is prepared, that would be taken  
19 into account. If there's any change on the site  
20 between the time the plan is prepared and the actual  
21 burn is conducted, the plan has to be revised.

22 Q. Thank you.

23 A. Prescribed burning in Ontario is  
24 strictly controlled by policy and by procedure and by  
25 the prescribed burn planning manual. The fire

1 management policy for Ontario is contained on page 496  
2 of my written evidence and it recognizes the use of  
3 fire as a resource management tool.

4 Further, it defines the function of the  
5 fire management program as one of the supports and it  
6 provides expert knowledge and specialized services in  
7 the matters of fire control, fire use and client groups  
8 within and outside the Ministry.

9 The prescribed burn policy is contained  
10 on page 501 of my written evidence and it describes  
11 what the prescribed burning technique can be used for  
12 in Ontario and sets out the manner in which prescribed  
13 burning can be done.

14 THE CHAIRMAN: Ms. Blastorah, with  
15 respect to the manual, do you recall that we got some  
16 material, as supplementary material to the witness  
17 statement. Should that perhaps be given a particular  
18 exhibit number?

19 MS. BLASTORAH: I was actually just  
20 waiting for Mr. Elliott to get to the end of this  
21 section.

22 I may as well ask you now to give us an  
23 exhibit number for that manual. I do have one, but Mr.  
24 Elliott may wish to refer to it, so I'll provide it to  
25 Mr. Mander at the end of the day.



1 THE CHAIRMAN: Okay. Why don't we mark  
2 the manual. Is it a complete manual?

3 MS. BLASTORAH: It's that white binder  
4 that you see in front of Mr. Elliott.

5 THE CHAIRMAN: All right. We will mark a  
6 copy of the complete manual as Exhibit 559.

7 MS. BLASTORAH: And I would point out  
8 that the Table of Contents from that manual was  
9 included in the witness statement and a copy of the  
10 manual itself has been available in the reading room  
11 since before Christmas I believe.

12 ---EXHIBIT NO. 559: Copy of Prescribed Burn Planning  
13 Manual published 1987.

14 MR. ELLIOTT: One of the rules is that  
15 prescribed burning shall be undertaken according to the  
16 specifications of this prescribed burn planning manual.

17 The manual describes how prescribed burns  
18 are proposed and approved, how to plan a prescribed  
19 burn, the plan approval process is laid out in the  
20 manual, and how to conduct a prescribed burn is covered  
21 in the manual. The requirements for a post-burn report  
22 are also clearly defined in the manual.

23 As Ms. Blastorah has already said, the  
24 contents of the manual are contained on page 504 of the  
25 written evidence. All prescribed burns must be

1 conducted under an approved plan.

2 THE CHAIRMAN: Can you give us the date  
3 of that manual, please?

4 MR. ELLIOTT: Just checking here. I  
5 believe it was 1986. It could have been early 1987 as  
6 well.

7 THE CHAIRMAN: I take it it was compiled  
8 after the accident a few years ago?

9 MR. ELLIOTT: The first edition was  
10 compiled right after the accident. This is a revised  
11 version.

12 THE CHAIRMAN: I see.

13 MR. ELLIOTT: Sorry, Mr. Chairman, we  
14 can't find the exact date of application, but it was  
15 either late '86 or early '87.

16 THE CHAIRMAN: Thank you.

17 MS. BLASTORAH: Q. Do you know, Mr.  
18 Elliott, how long or could you give us a number of  
19 years that there has been a prescribed burning manual  
20 of some kind in use by the fire management program?

21 MR. ELLIOTT: A. There has been a  
22 prescribed burn manual in use since 1980.

23 Q. Thank you.

24 A. I would now like to move on to  
25 prescribed burn operations and we will begin this with

1 a description of the elements of the Canadian Forest  
2 Fire Danger Rating System that are used to set  
3 prescriptions for fire and to predict the impact of  
4 fire on the site.

5 The Canadian Forest Fire Danger Rating  
6 System is made up of a set of codes and indices which  
7 are derived from daily weather measurements that are  
8 collected and recorded throughout the fire season.

9 MS. BLASTORAH: Perhaps we can mark this  
10 slide as the next exhibit, 558D and it's titled: Forest  
11 Fire Behaviour System, Fire Weather Indices -- Index, I  
12 beg your pardon.

13 ---EXHIBIT NO. 558D: Slide entitled: Forest Fire  
14 Behaviour System, Fire Weather  
Index.

15 MR. ELLIOTT: Mr. Chairman, Mr. Greenwood  
16 has found at the back of this manual that it was  
17 published in 1987.

18 THE CHAIRMAN: Thank you.

19 MR. ELLIOTT: This system of fire  
20 behaviour and impact predictors was developed by  
21 Canadian forest fire researchers and is continually  
22 under review and revision by them.

23 MS. BLASTORAH: The next slide is Exhibit  
24 558E titled: Weather Observations.

25 ---EXHIBIT NO. 558E: Slide entitled: Weather

1 Observations.

2 MR. ELLIOTT: The calculation of these  
3 codes and indices is based on temperature, relative  
4 humidity, wind speed and direction and rainfall taken  
5 from established forest fire weather stations at 13:00  
6 hours, one o'clock in the afternoon, local time each  
7 day. There is a network of fire weather stations  
8 across Ontario and all of our fire operations  
9 headquarters and attack bases are supplemented by  
10 weather information from Atmospheric Environment  
11 service stations at airports and other locations across  
12 Ontario.

13 The codes that are calculated are  
14 relative measures of the moisture content of various  
15 fuel layers found in the forest.

16 MS. BLASTORAH: This slide is Exhibit  
17 558F entitled: Forest Fuel -- sorry, I can't see for  
18 the post.

19 MR. ELLIOTT: Forest Fuel Complex.

20 MS. BLASTORAH: Thank you.

21 ---EXHIBIT NO. 558F: Slide entitled: Forest Fuel  
22 Complex.

23 MR. ELLIOTT: The fine fuel moisture code  
24 represents moisture content of twigs and needles found  
25 in the surface -- along the surface of the forest



1 floor. It is represented by the green layer on the  
2 slide.

3 The duff moisture code or DMC is a  
4 measure of the moisture content in the upper layers of  
5 the organic material five to ten centimetres deep and  
6 the drought code -- I might say that the duff moisture  
7 code represents fuel that is coloured yellow on this  
8 particular slide.

9 The drought code represents the moisture  
10 content of the deep compacted organic material and this  
11 is represented in orange on the slide. Mineral soil is  
12 at the bottom and it's represented by a brown colour.

13 MS. BLASTORAH: The next -- I'm sorry,  
14 the slide is Exhibit 558G. What will we title this  
15 one, Mr. Elliott?

16 MR. ELLIOTT: This is a comparison of FWI  
17 code and slash size.

18 MS. BLASTORAH: Thank you.

19 ---EXHIBIT NO. 558G: Slide entitled: FWI Code and  
20 Slash Size.

21 MR. ELLIOTT: These codes also relate to  
22 the various size slash fuels that one would find in a  
23 cut-over area proposed for prescribed burning.

24 Fine fuel moisture code would reflect the  
25 moisture content of slash up to 1/4 inch in diameter,

1 the duff moisture code would reflect the moisture  
2 content in slash fuel from 1/4 inch to 2 inches in  
3 diameter, and the drought code would reflect the  
4 moisture content in fuel in excess of 2 inches in  
5 diameter.

6 MS. BLASTORAH: The next slide is 558H  
7 titled: Forest Fire Behaviour System -- oh, is that  
8 the same slide as before, Mr. Elliott?

9 MR. ELLIOTT: It's the same slide as  
10 before.

11 MS. BLASTORAH: Oh, I beg your pardon  
12 then, that one is already given a number.

13 THE CHAIRMAN: It's D I think.

14 MS. BLASTORAH: Thank you.

15 MR. ELLIOTT: We have been talking so far  
16 about the codes, fine fuel moisture code, duff moisture  
17 code and drought code. Now, we are going to move to  
18 the index part of the fire weather index system.

19 The initial spread index is a combination  
20 of fine fuel moisture code and wind speed and it is a  
21 numerical rating of the expected rate of spread that a  
22 fire would have soon after ignition. Build up index is  
23 a combination of the duff moisture code and the drought  
24 code and it is an indication, it's a numerical rating  
25 of the total amount of fuel available for combustion at

1 any given time. The fire weather index is a numerical  
2 rating of the potential fire intensity.

3 These codes and indices are calculated  
4 from a set of tables or by computer, whichever the  
5 person has handy at the time.

6 MS. BLASTORAH: This slide will be 558H  
7 it's titled: Moisture Content.

8 ---EXHIBIT NO. 558H: Slide entitled: Moisture  
9 Content.

10 MR. ELLIOTT: This is a diagramatic  
11 representation of the effect of moisture content on  
12 fuel available for combustion. The fine fuel moisture  
13 code, as I said before, represents things like twigs  
14 and needles. The higher the code the more red area  
15 and, hence, the more fuel available for combustion.

16 In the case of the log, the build up  
17 index would be reflective of the available fuel for  
18 combustion in the log. The higher the build up index  
19 the, more red area and, hence, the more the log would  
20 burn under those conditions.

21 MS. BLASTORAH: Q. Would age of the  
22 slash affect that, Mr. Elliott?

23 MR. ELLIOTT: A. Age affects it to some  
24 extent but, as Mr. Kennedy said this morning, fresh  
25 slash has a much higher moisture content than cured

1 slash. We'd be looking for prescribed burning purposes  
2 ideally within a year or two after the cut in order to  
3 burn.

4 All of the things that the forest fire  
5 danger rating system can measure and predict have an  
6 impact on the prescribed burning and on prescribed burn  
7 planning. When a fire manager is planning a prescribed  
8 burn to accomplish an objective set out by the  
9 forester, he consults the codes and indices to develop  
10 the burning conditions to achieve the desired result.

11 In particular, the build up index is used  
12 to predict removal of the prescribed amount of slash  
13 and organic material and to describe the impact of fire  
14 on the site and this impact is described in terms of  
15 depth of burn.

16 The initial spread index and the fine  
17 fuel moisture codes are used to set the limits of fire  
18 behaviour; that is, rate of spread and fire intensity  
19 and to help predict and plan for the control measures  
20 that will be required.

21 MS. BLASTORAH: This slide will be  
22 Exhibit 558I entitled: Forest Fire Behaviour Rating  
23 System Can Predict.

24 ---EXHIBIT NO. 558I: Slide entitled: Forest Fire  
25 Behaviour Rating System Can Predict.



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MS. BLASTORAH: Q. Mr. Elliott, just while we are stopped, perhaps you could indicate at what point you feel it's a convenient place to break for the day. I think probably you are the best judge of that.

7

8

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10

MR. ELLIOTT: A. Well, if it's all right with everybody if we can go as close to one o'clock we can break it at that point and I think we can find a spot there where we won't lose the continuity.

11

THE CHAIRMAN: Very well.

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MR. ELLIOTT: This slide is Figure 2, it's found on page 437 of the evidence. It's a typical generic prescribed burn organization, consists of the fire boss, ignition boss, service boss, intelligence boss and suppression boss and each one of those supervisory personnel have crews reporting to them, personnel reporting to them to carry out the jobs that need to be done on a prescribed burn. In addition, there's a fire safety officer assigned to each and every burn.

22

23

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The functions shown by these positions on the organization chart are all represented in the planning process and pre-burn operations and on the actual burn operation.

1                   The fire boss has the ultimate  
2           responsibility for preparing a plan in compliance with  
3           the prescribed burn planning manual. In addition, he  
4           assures that all of the pre-burn tasks such as fuel  
5           sampling, weather station establishment and  
6           construction of fire control boundaries are undertaken.  
7           It is his job to ensure that qualified people fill the  
8           required task represented here.

9                   The sizes and complexity of the proposed  
10          burn will determine the actual number of people that  
11          are required in the organization. In some cases, a  
12          fairly simple fire, the fire boss may double for  
13          example as the ignition boss or as a suppression boss;  
14          and, in some cases, the intelligence boss may be able  
15          to perform the function of a fire behaviour officer as  
16          well.

17                   MS. BLASTORAH: Q. On all burns would  
18          all of those positions be represented however, whether  
19          by one person or by several people?

20                   MR. ELLIOTT: A. All of those functions  
21          that that organization represents would be looked after  
22          on all burns by somebody.

23                   It is necessary for all personnel  
24          involved in prescribed burning to be trained according  
25          to the standards established by the forest fire

1 personnel standards manual. Pages 508 through 532 of  
2 my written evidence are examples of minimum  
3 qualification standards and training courses required  
4 for positions that could be involved in prescribed  
5 burns.

6 For example, page 516 describes the  
7 standards required for a fire behaviour officer. Part  
8 of this standard includes a training requirement. This  
9 requirement specifies the need to have successfully  
10 completed the fire behaviour officer training course.  
11 This course outline is found on page 529 of the written  
12 evidence.

13 One of the prerequisites for this course  
14 is another training course entitled: M-100 Fire  
15 Behaviour for Fire Managers and the description for  
16 this particular course is found on page 530 of the  
17 written evidence.

18 The course outlines show the objective of  
19 the training course, the general description of what is  
20 contained in the course, the level of the organization  
21 that is, province or region or district responsible for  
22 the delivery of the course, and what type of people  
23 would be trained by this particular course.

24 The standard for successful completion is  
25 identified and the course is shown as to whether or not

1 a certificate is issued for the successful completion.

2 MS. BLASTORAH: Mr. Chairman, we don't  
3 intend to go through those training courses in detail.  
4 The page references are given. If the Board wishes,  
5 they can go through them.

6 THE CHAIRMAN: That's fine. Thank you.

7 MR. ELLIOTT: This is photograph 1 in the  
8 evidence. This is a portable weather station. This is  
9 the type of weather station that should be set up at or  
10 near every prescribed burn site.

11 As I mentioned before, there is a network  
12 of fire weather stations across Ontario, however that  
13 network leaves a lot of space between some of the  
14 weather stations and in order to properly conduct a  
15 prescribed burn, weather observations must be taken as  
16 close to the site as possible.

17 These stations are set up at least two  
18 weeks prior to the day of the burn. The daily weather  
19 observations of wind speed and direction, relative  
20 humidity, temperature and rainfall are recorded and the  
21 codes and indices we just talked about are calculated  
22 for this station.

23 A system of mass that has the anemometer  
24 to measure wind speed and direction, it has a Stevenson  
25 screen to house the thermometer, wet and dry bulb



1 thermometers calculating the relative humidity and the  
2 air temperature and there is a rain gauge to collect  
3 whatever rainfall is on the site.

4 The codes and indices information are  
5 used by the fire boss to help determine the actual day  
6 of ignition. As the codes and indices approach what is  
7 required to conduct a prescribed burn, the fire boss  
8 consults with the fire duty officer at the regional  
9 fire centre about the decision to conduct the burn.  
10 The decision to proceed is made by the regional fire  
11 duty officer on the recommendation of the fire boss.

12 The duty officer is in charge of all fire  
13 operations on a daily basis in the region. His major  
14 responsibility is to ensure that there is adequate  
15 manpower and equipment available to conduct the  
16 proposed prescribed burn and to deal with the expected  
17 wild fire situation on any given day.

18 This is Figure 4 found on page 448 in the  
19 evidence package. It is a typical map of a prescribed  
20 burn. The map is extracted from the plan for the  
21 Battersby Township prescribed burn conducted in 1988 in  
22 the Gogama District.

23 MS. BLASTORAH: Mr. Chairman, the colours  
24 on this slide are not, I don't think, even remotely  
25 similar to what appears in the witness statement. I

1 think that was simply a problem of reproduction in both  
2 cases. I don't think either is probably a terribly  
3 accurate representation as to the colours on the actual  
4 map.

5 Q. But perhaps, Mr. Elliott, in  
6 referring to the areas on the slide you could attempt  
7 to also indicate the colour that those areas appear in  
8 the witness statement, to the best you can in the dark  
9 here?

10 MR. ELLIOTT: A. I will do my best.  
11 This burn was proposed by the FMA holder to the Gogama  
12 office in November, 1987. The total area to be burned  
13 was 550 hectares. The information contained on maps  
14 like these are important to all involved in the  
15 prescribed burn operations. And I would like to talk  
16 about the major features on the map for a moment.

17 The solid red line delineates the  
18 prescribed burn boundary and it is the same colour as  
19 the line in the written evidence. The dotted red line  
20 you see which is outside of the solid red line around  
21 the outside of the burn, identifies the allowable burn  
22 area. This is an area outside of the prescribed burn  
23 in which fire can ignite and spread and still not be  
24 called a wild fire.

25 At the same time, that fire would be

1 suppressed and extinguished should it cross the solid  
2 red line into the allowable burn area. The suppression  
3 action would be taken in that area would be the  
4 deployment of manpower and equipment to control the  
5 spread of fire in that unwanted area. It could take  
6 the form of trained crews with power pumps and hose or  
7 with hand tools such as shovels, or it could take the  
8 form of air attack with CL2-15 aircraft.

9 Natural boundaries are represented by the  
10 light green and light blue areas around the fire. In  
11 the witness statement the colours are darker, the dark  
12 green and dark blue. These boundaries will normally  
13 stop the spread of fire that would be set under the  
14 prescription. There is no further action that has to  
15 be taken to suppress the fire where it would burn up  
16 against a natural boundary.

17 In addition, to the natural boundaries  
18 that were used to control this prescribed burn, there  
19 were sprinkler set-ups to tie in between natural  
20 boundaries at these locations on the south end of the  
21 burn. We will talk about a little bit more about what  
22 these are a bit later.

23 In addition, pump sites were established  
24 in locations around the perimeter of the fire. There  
25 is one there and there is another down here.

1 (indicating) They are a wavy, wiggly little line on  
2 the map. These are established in the event that  
3 suppression action is needed in areas outside of the  
4 burn boundary.

5 Each pump site was located so it could be  
6 serviced by road or by helicopter in the event that  
7 there was a breakdown or that extra gasoline had to be  
8 delivered or something like that.

9 Finally, there were three crews, three  
10 suppression crews positioned to protect the high value  
11 areas around the prescribed burn. One down here, one  
12 here -- there were two down here, there is one over  
13 here with a tanker and one over here with just a power  
14 pump and hose set-up. (indicating)

15 These crews used either a power pump  
16 set-up or a tanker as their fire suppression equipment.  
17 By way of clarification, a tanker is just that, it is a  
18 mobile tank containing water mounted on the back of a  
19 truck and outfitted with a pump and fire hose and it is  
20 used in places where it is a long way from a creek or a  
21 lake.

22 Q. I take it that would be something  
23 that would be mobile then--

24 A. Yes.

25 Q. --and could be moved around to where



1 a problem may arise?

2 A. Yes, that's right. The areas that  
3 show in purple outside of the prescribed burn boundary  
4 are high value areas. In this case, they are  
5 regenerated forest areas; in other cases, on other  
6 burns, these high value areas could include areas of  
7 standing timber scheduled for harvest, could include  
8 wildlife habitat areas, could include areas of concern  
9 to protect fisheries habitat, they could be cottage  
10 subdivisions or other real estate values such as  
11 trappers' cabins, it could be found in the areas  
12 surrounding the prescribed burn.

13 And I might say that, in those cases,  
14 values well in advance of the burn are identified, not  
15 just in the burn perimeter area, but well in advance of  
16 the prescribed burn and well outside the area planned  
17 for burning the values are looked at and identified.

18 Q. Those areas that you've just been  
19 speaking of, the ones that show in purple on the slide  
20 I think show as sort of a bright red in the witness  
21 statement?

22 A. Yes, they do. In addition, the  
23 hatched areas to the south of the burn, southeast side  
24 of the burn and north of the burn, indicate areas where  
25 they would be -- one would expect significant fire

1 spread because of fuel condition.

2 Other maps, such as extensive values maps  
3 that would show, as I said before, the values in the  
4 area well away from the planned burned boundary.  
5 Ignition maps would show the pattern of ignition and  
6 there is one contained in the evidence, Figure 3 on  
7 page 447.

8 These maps are found in all prescribed  
9 burn plans. Sources for the information that appear on  
10 these maps include lands files in the district, mining  
11 recorder records, regeneration records, fire plans  
12 developed for wild fires in the district, from local  
13 staff knowledge and, of course, from timber management  
14 process list of values.

15 Q. The values map that you referred to,  
16 I believe you said it is always contained in a  
17 prescribed burn plan; am I correct?

18 A. Yes. Yes, it is.

19 Q. Would that be identical to the timber  
20 management values map that's prepared as part of the  
21 timber management planning process?

22 A. Not necessarily identical to, but it  
23 would contain the same information.

24 Q. Thank you.

25 A. In addition, maps containing the kind

1 of information shown on this slide with a grid overlay  
2 are used by staff involved in conducting the prescribed  
3 burn. So in combination with the grid overlay and the  
4 road numbering system, which these numbers represent on  
5 the map, give people a way of identifying quickly where  
6 things are on the burn site during the operation.

7 All of the information contained on these  
8 maps and what they mean -- or what it means and how it  
9 is to be used are fully explained to all personnel  
10 participating in the prescribed burn during a pre-burn  
11 briefing. This briefing must be held on all prescribed  
12 burns prior to ignition.

13 The key supervisory staff provide  
14 information on weather and expected fire behaviour,  
15 they provide information on expected smoke conditions  
16 during the burning operations, they describe the  
17 ignition sequence and pattern for ignition, they  
18 describe the suppression plan that will be put into  
19 force in the event of a reported fire escape, and they  
20 go over the safety plan that includes escape routes, if  
21 required, and the location of first aid facilities on  
22 the operation. All staff involved in the burn,  
23 including helicopter pilots, must participate in the  
24 briefing.

25 In addition to the maps that may be used

1 during the briefing, the fire boss may also choose to  
2 use an aerial photograph mosaic to help describe the  
3 features around and in the prescribed burn area.

4 I think, Mr. Chairman, if it is all  
5 right, I prefer to stop here.

6 THE CHAIRMAN: Very well. Well, thank  
7 you, ladies and gentlemen, we will --

8 MS. SWENARCHUK: Mr. Chairman.

9 THE CHAIRMAN: Sorry.

10 MS. SWENARCHUK: One small point. I  
11 spoke with Mr. Kennedy about progress on the  
12 clearcutting size research and the Ministry is about to  
13 produce a letter, probably Monday, on the methodology  
14 and we were suggesting Tuesday at noon at about 12:30  
15 for a meeting of lawyers and consultants on this issue  
16 again.

17 So I am just wondering if everyone could  
18 check and see whether that time is available for them.  
19 Mr. Kennedy suggested it.

20 MR. CASSIDY: I'm going to have to speak  
21 to the person for my client who is assisting me on  
22 that. I will review it forthwith after we finish here.  
23 I will advise Mr. Swenarchuk if she is still in the  
24 building this afternoon or first thing Monday morning.

25 THE CHAIRMAN: Very well.



1 MS. BLASTORAH: Mr. Chairman, just one  
2 other procedural matter or actually housekeeping  
3 matter.

4 Perhaps Mr. Mander could just ensure next  
5 week, I think probably Tuesday, that the Board has  
6 their copies of the Tree Improvement Master Plan. It  
7 was a supplementary document sent out with this panel,  
8 but it was filed separately. So if you could just  
9 ensure that you have those here, I think we will  
10 probably get to Mr. Baker on Tuesday.

11 THE CHAIRMAN: Very well.

12 MS. BLASTORAH: Thank you.

13 THE CHAIRMAN: All right. We are going  
14 to adjourn at this point and we will be commencing  
15 Monday morning at nine and we will commence initially  
16 with the hearing of Mr. Castrilli's motion and proceed  
17 through that for as long as it takes.

18 The only thing that might interrupt that  
19 is if parties show up with respect to the scoping  
20 session, particularly for the next panel that we  
21 indicated would take place on May 8th and, if they came  
22 in particularly for that purpose and they weren't one  
23 of the parties regularly in attendance, then at some  
24 point that day we may interrupt the motion proceedings  
25 to deal with that because it wouldn't be fair to have

1 those people have to remain overnight if they came in  
2 specifically for a date set by the Board in advance.

3 Beyond that, we will proceed through with  
4 the motion, the scoping exercise following that, and we  
5 will have a discussion on the third matter which we  
6 left for that day which was the community hearing, the  
7 first one that we are contemplating for September or  
8 October of this year.

9 MR. FREIDIN: I was wondering what other  
10 matter was in my book. Thank you very much.

11 THE CHAIRMAN: And then we will get back  
12 to the evidence, whenever, in time to break for 7:00  
13 p.m. on Tuesday for the planned festivities.

14 Thank you.

15 ---Whereupon the hearing adjourned 12:50 p.m., to be  
16 reconvened on Monday, May 8, 1989 commencing at  
9:00 a.m.

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